THE JOURNAL OF THE
AMERICAN OSTEOPATHIC ASSOCIATION

VOL. XII NEW YORK, N. Y., SEPTEMBER, 1912 No. 1

Original Articles

THE OSTEOPATHIC LESION

CARL P. MCCONNELL, D. O.
Chicago

PART I—EXPERIMENTAL

In our previous reports, especially in A. T. Still Research Institute Bulletin No. I, we have recorded experimental findings following production of the osteopathic lesion, as follows: Pathological changes in the primary sensory neurone, including posterior ganglion and fibres of the posterior column; changes in the nerve groups of the anterior, lateral and posterior horns; changes in the primary motor neurone; changes in the sympathetic ganglia; visceral affections; and ligamentous and muscular involvement.

Degenerative Changes

In this report we have the following additional pathology to report:

(a) Definite paths of degeneration in the entry zone and in the posterior column, the fasciculus gracilis (Goll's tract) and the fasciculus cuneatus (Burdach's tract), also scattered fibres corresponding to the descending postero-medial and postero-lateral tracts;

(b) Posterior cerebello-spinal tract (direct cerebellar tract);

(c) Ascending anterior cerebello-spinal tract (Gowers' tract).

It should not be understood that these degenerations have destroyed the tracts; within all probability they are amenable to treatment. In some cases, many fibres are affected, in others only a few. The character of the pathology is the same as given in previous reports. The question of regeneration within the central nervous system at once arises here, owing to the fact that the fibres have no nucleated sheath of Schwann. We think it probable that moderate changes, due to the osteopathic lesions are amenable, whereas a denervated lesion would not be. At any rate, in those cases where comparatively few axones are involved the ultimate results may not prove specially serious, owing to the large number of axones, provided the original cause is removed, thus eliminating further disturbance.

Degenerative changes have not been found in every case, but in the majority of cases. These changes have been constant as to locality, and correspond, we believe, to the above named tracts, although as to the latter it is possible we are mistaken; and it should be noted that all of the degenerated paths named above are not necessarily found together in the same specimen. Evidently a series of lesions (osteopathic) of apparently the same character may cause a variety of pathologic disturbances. The lesion may involve nerve fibres singly, in groups, or possibly the entire nerve-trunk; or certain groups of nerve centers or certain cells of groups may be involved. Interesting examples are: the vascular supply of the lateral cell columns is independent of that to the motor cells of the ventral horn; differences of function are shown in the myelination at five different periods of the dorsal roots and dorsal columns.

It is claimed that most of the nervous impulses from the joint surfaces, ligaments, tendons, muscles and skin, pass from the end-organs through the spinal ganglion to the posterior column and into

the fasciculus gracilis or fasciculus cuneatus.

It is readily seen how important it is that the joint surfaces, ligaments, muscles, etc., be normally responsive and not held immovable and inactive through osseous or muscular lesions, or weakened through lack of exercise. We are of the opinion that it is largely through the ligamentous changes that the lesion is maintained.

Tract Most Frequently Involved

In the nervous tissues we have found the greatest involvement with the primary sensory neurone. It seems to us that herein, to an important extent, lies the inception of the pathology of the osteopathic lesion. Probably most of the impulses, muscular and tactile, from the viscera pass through the posterior roots of the spinal nerves to the posterior cerebello-spinal tract. It will be recalled that this tract is considered a sensory path of the second order. It originates from Clarke's column (an area at the inner angle of the base of the posterior horn).

The changes here have not been noted so frequently as in the posterior column, one probable reason being that osteopathic lesions vary as to severity and extent of involvement; every lesion does not necessarily result in a viscus effect. And it may also be said every viscus effect is not always demonstrable pathologically, depending upon severity of lesion, length of time, character of viscus tissue involved, and how disturbed.

Several possible explanations as to the cause of the disturbance of this tract will suggest themselves. Among the most likely we would place first, vascular changes in the cord due to reflex vasomotor ataxia. The vasomotors enter by way of the posterior root. Then, of course, the impulses of the primary sensory neurone are disturbed even before the cells of Clarke's column are involved. Another concomitant, or possibly independent factor, is the pathologic changes of the viscero-motors due to impairment of cells in the anterior horn. We do not wish to theorize here, but rather to state a few possible explanations in order to emphasize the pathologic findings.

Relative to the third tract, we have noted in this report, the ascending anterior cerebello-spinal tract, various investigators have stated that probably pain and temperature impulses pass this way. (The dorsal nucleus—Clarke's column—also carries painful and thermic stimuli). This tract is probably also a sensory path of the second order and arises from cells between the anterior and posterior horns. To complete the picture of the posterior root fibres, it may be well to recall that within the cord they divide, one branch passing up within the posterior column, the other downward in the comma tract for a segment or two. Collaterals from both are given off to the grey matter of the immediate and upper and lower segments. The collaterals form synapses with the anterior horns (skeletal reflexes), posterior horns, lateral horns (visceral reflexes), and Clarke's column.

The lower motor neurone rises from cells in the medial, lateral and intermediolateral columns on the same side and from the medial column of the opposite side. The voluntary motor fibres originate in the anterior column; and the involuntary fibres, sympathetic in function, vasomotor, visceromotor, secretory, inhibitory, rise from the intermedio-lateral column.

Vascular Changes to Ganglia

In all of our pathologic findings it seems to us the most significant changes are those of the vascular changes to the ganglia—posterior ganglion, cells of the grey matter of cord, and sympathetic ganglia. Part of the pathology may possibly originate from three sources; probably these are factors of varying and various degrees: (a) blockage of normal impulses followed by retrograde changes; (b) vasomotor ataxia; (c) traumatic (strain and stress) effect to vascular and nervous tissues due to the subluxated segment. However, the most significant

basic and permanent change arises from reflex rather than direct causes.

An important negative feature is that we have found no changes in the axones of the higher motor neurones. Our data is based upon the dorsal segments. The most pronounced fibre changes are found in the primary sensory neurone and the lower motor neurone. These degenerations in the well marked lesions are the same as the others heretofore reported. They are found in both halves of the cord, and substantiate the conclusion that the osteopathic lesion effect is a reflex effect and not essentially a pressure upon the tissues at the point of the spinal foramen exit.

It may be well to review this point a little further. In the first place, no one will question, or has questioned, that if pressure exists at the spinal foramen, damage will result; but we believe "the osteopathic lesion is not the result of mechanical pressure *per se* in this region." (Bulletin No. I, p.25).

Recent Findings

In addition to previous reports, we submit the following: Pathology is the same usually in both halves of the cord, showing that the primary sensory neurone involvement of either side is practically equal; the lower motor neurone is degenerated (but not of a Wallerian character) primarily from vascular changes in the cells of the anterior horn (the higher motor neurone is normal), and retrograde changes are not an important factor.

The affirmative evidence of greatest weight might be that pressure at the foramen would disturb the primary sensory neurone and the vasomotors to the spinal cord, the latter resulting in vascular disturbances to cells of the motor neurone. In this case it would not be likely that the pathology of both halves would be the same. One will readily grant that the spinal foramen of the opposite side, to which the spinous process is rotated, tends to encroach upon the same (spinal nerve), and that the straining of the firm anchorage about the fibres of the other side by separation would act as a blockage. But the explanation of all the pathology, even in this instance, would be more upon the plane of reflex changes than of direct pressure.

Every osteopathic physician of experience is well aware that an impacted, rigid, or fibrous ankylosed (articular process) lesion is of more serious consequence than a marked twist accompanied with greater motion. Then physiologically the functional inception of nervous activity is afferent integrity, with a reflex arc and efferent channel as a structural fundamental.

We do not wish to imply that the pathology of the osteopathic lesion always signifies a serious condition any more than when one is not feeling well his condition is desperate; but we thoroughly believe that it is a demonstrable lesion pathologically as well as clinically; that it is a frequent and important etiologic factor; that it demands specific interference; and that if adjusted and left alone, recovery is the rule.

PART II—THEORETICAL

Two or three features of the nervous system, broadly stated, are fundamental to an understanding of the osteopathic lesion.

(a) Co-ordination of the innumerable activities dependent upon both external and internal environment. Internal bodily activities initiate changes as well as external activities, and conduction and co-ordination of these impulses constitute the "biological significance of the nervous system." Osteopathically, the structural and functional unification of the different segments constitutes the anatomical and physiological basis of the lesion;

(b) There are various kinds of "sensory" stimuli, whether from external or internal sources. The several afferent fibres being simply limited to the kind, so a structurally intact fibre is the first essential to health, while a constantly functioning fibre in response to its char-

acteristics, whether from immediate or reflex sources, completes its purpose. We should not lose sight of the fact that all nervous phenomena from special functioning to bodily tone is unequivocally dependent upon the so-termed reflex changes. Keeping in view the basic point that all nervous response is absolutely dependent upon the afferent fibre, reflex arc and efferent fibre, will be most valuable when discussing nervous structures more or less arbitrarily "specialized" and "differentiated";

(c) "The superiority of the nervous system of man does not consist, in the main, of superiority in sense organs or motor apparatus, but in the enormous development of the intermediate neurone system." (Some of our data here is derived from Bailey and Miller's Embryology).

These intermediate or central neurones mediate between the afferent and efferent neurones. This increases the complexity of the nervous system by associating all kinds of stimuli, adding complicated combinations and extensive co-ordination. There is a vast difference in the complexity of a two-neurone reflex arc and a three-nernone reflex arc. In the human brain the special distinguishing feature is the association neurones. Thus evolutionary change is not so much a segmental one as it is a development of the associating mechanism. An important consideration here is that data derived from animal experimentation is reliable and applicable to all vertebrate nervous systems.

A striking and significant point in the highly developed nervous structure is the concentration and centralization of the nervous tissues by increase of ganglionic structure and association fibres. This is early initiated in the embryo by the formation and closure of the neural tube. Among other changes in the morphology of the afferent and efferent neurones, there is brought about a certain physiological dependence of the internal (visceral) and external (somatic) structures, although the interpolation of neurones in the autonomic system represents a certain independence. However, the cord sends efferent fibres to both somatic and visceral structures, and within all probability the integrity of a segment is dependent upon all incoming stimuli of its own as well as contiguous segments. There may be a certain amount of physiological dependence, still the intersegmental neurones are an essential to group and higher functioning.

In the osteopathic lesion (pathology) we should keep in mind the fact that t' changes are more segmental in charac rather than always showing a very def nitely localized point of obstruction. Reflex activity is the basis of physiologic functioning, and the several segments are in reality a series of reflex arcs. Whether inceptive pathologic changes are, like the vertebral osteopathic lesion, contiguous to the central nervous systems, or are brought about by a duodenal ulcer or adherent appendix, the nervous involvement is expressed through the reflex arc. No matter how specialized the nervous structures may be, there is basically a dependent reflex change as well as a greater or less widespread disturbance of nervous equilibrium.

Nervous equilibrium is not alone a localized phenomenon, but instead a generalized one, as expressed, for example, in the nutrition, tone and neuro-muscular balance being dependent in its greatest efficiency upon all afferent fibres, reflex arcs and efferent fibres. Even the innervation of a single skeletal muscle comes from more than one segment or the intestinal motors may be blocked from more than one point by either central or peripheral lesions. Normal impulses, free circulation and sufficient oxygen are fundamental to metabolism.

Embryology, histology, physiology, pathology and experiment have all contributed to a partial understanding of functions and perverted function, but the greatest of pathological results have been a noting of effects and not of causes, in-

sofar as the innumerable disorders and their infinite gradations are concerned.

Nervous and vascular tissues are master tissues, hence, logically we must look to these for the inception of bodily ill-health. Fundamentally, anything that impairs these tissues will be reflected upon their dependent parts, and the importance, physiologically, of the tissue or organ involved (e. g. kidney) will further determine the character and gravity of the secondary changes. Here, however, we are specially interested in the inception and immediate effect of the osteopathic lesion.

Equilibrium and Health

Before one discusses the nature of ill health, some sort of a health standard should be instituted. Health from the standpoint of nervous functioning is dependent upon a stable equilibrium; this means not only uninterrupted nervous conduction, but sufficient nervous impulses. Likewise, in vascular functioning, the flow must not only be unimpeded, but it must be sufficient and continuous. In other words, physiologic equalization is the fundamental requirement.

Probably neither physiologists nor clinicians have sufficiently emphasized the necessity of the afferent impulses, whether so-termed "sensory" or others, that constitute the basis of all nervous activity. Every movement, exercise, work, recreation, air currents, respiration, alimentary activity, vascular propulsion, bathing, environment, has its effect upon afferent innervation, in fact, is basic to so-termed hygiene.

The principle of the summation of stimuli is well exemplified here, and constitutes a fundamental principle of bodily health and development. (And it also constitutes an important part of pathology). The effectors must function continually and regularly in order that the receptors may execute their part. In order that the body may work as a concatenated whole, every part must fulfil its requirements. Herein, in our opinion, is the basic point to osteopathy. Given an osteopathic lesion, whether osseous, muscular, or visceral, the first effect is one of nervous blockage. The activity, impulses and rhythm of the local forces are at once disturbed so that both local and correlated tissues are impaired, dependent upon their character and specific functions. A twisted vertebra, rib or innominate will have no different effect, basically, as has been stated, than an adherent retroverted uterus, a fibroid degeneration of the appendix, or a broken plantar arch, although the location and relation of the vertebra to the central nervous system is of vastly greater impeding significance.

Anatonmic and Pathologic Changes

Anatomical perfection (structurally) is the basis of health from a characteristic osteopathic viewpoint, for this implies perfect nervous and vascular functioning, provided hygienic measures are carried out. It would be beside the point, as we view it, to always look upon the osteopathic lesion as some specific or individualized lesion of the nervous system, as for example, degeneration of the posterior column in tabes dorsalis, or degeneration of the pyramidal tracts in early acquired spastic paralysis, yet this is the viewpoint of many when they insist (without any verified observation) that the pathology of the lesion follows pressure of the fibres at the spinal foramen exit. If this were the case the pathology of the lesion would be a comparatively simple matter. No one will question but such a condition may occasionally be found, or that very serious consequences may not follow, but we believe that the field is fundamentally a much broader one.

Although the ligaments to a large extent maintain the chronic lesion (anatomically) it is the circulatory derangement, impoverished nutrition, that maintains the pathologic changes. Whether part or all of the vascular pathology inceptively is due to segmental strain or

stress *en masse,* or the result in part or whole of nervous blockage, resultant anemia, or hyperemia followed by edema and anemia of cord centers, sympathetic ganglia and viscus are within all probability dependent upon nervous phenomena. Thus, taking the vertebral maladjustment as a type of an osteopathic lesion, the inceptive effect is a functional derangement in part, of the corresponding nervous segment. Upon a nervous basis alone, this is followed by either inhibition or stimulation (probably the latter at first), of involved nervous tissues. These functional derangements, if continued, are followed by organic changes.

Organic change implies a lessening of the nutritive intactness of the nervous element, either to lack of normal stimulus or traumatic damage, or to stress (mechanical) upon blood vessel or lymph channel; or, of probable greatest importance, upon involvement of vasomotors. (See appendix). Following this further involvement and complication may arise, (a) infection, (b) toxins, (c) chemical changes, due to the lowered resistance.

The location of the vertebral lesion is what makes the maladjustment significant. The central nervous system, more than any other tissue, is less resistant to circulatory impoverishment. Then general fatigue is an additional common factor frequently overlooked by the physician. A physiologic unit will be maintained so long as the system is sufficiently energized, even if certain slight pathologic conditions are present. Forces that sustain one in health and ill-health are largely of the same character, but vary greatly in degree as gradations of health conditions are initiated.

PART III—PRACTICAL

In our study of the osteopathic lesion, both experimentally and clinically, we are thoroughly convinced there are two fundamentals that must be observed in order to secure a maximum of success in treatment:

First, the bodily mechanism should be basically intact before further adjustment or correction is attempted. By this we mean the spinal column base (pelvis) should be structurally normal. Every mechanism should be "leveled up" before one can expect the superstructure to assume a relationship with a minimum of friction or before one can hope to adjust the "boxes" with any degree of success; and it is not straining a point in the least (to the contrary it is most practical) to say that with the human machine the relationship of sacrum and innominata must be "leveled up" or adjusted. This, then, gives us a foundation upon which to adjust the superimposed parts. Dr. Still has repeatedly urged us in our technique to commence at the bottom and seriatim "line up" the lesions above Many lesions are compensatory or secondary to some lesion lower down in the structure, and will not yield or stay adjusted until the basic lesion is corrected;

Second, a fundamental point in technique is specific adjustment. It is not enough to know where the lesion is, but we must know just how it is displaced. Most lesions are due to some form of rotation, and if we can analyze its characteristics it is then simply a matter of releasing the articular processes and negotiating the return by the characteristics presented.

We know this sounds easier than it really is. But, fundamentally, a lesion in nearly every instance is a rotation, and if we would spend much more time on diagnosis and far less on hit or miss technique, with a little mechanical ingenuity, our therapeutic efficiency would, at the very least, be doubled. The technique should be a comparatively easy matter; it is the diagnosis that is difficult. There are many features that should be considered. Aside from the mere mechanical problems there are the various local and general pathological conditions, strength and age of patient, etc.

There is one other point, however, which should almost be dignified to a position as fundamental. It is a corollary of the above two fundamentals; it is to locate the "key" to a series of lesions, a curvature, a rigid area, or what is not infrequent, a distant lesion. To illustrate: A cervical lesion may be secondary to a dorsal, or even an innominate lesion; a dorsal twist, or rigid area to a lumbar or innominate deviation; in fact, there are innumerable gradations and combinations. Herein lies the really difficult work.

In contrast to the above there are two things adjustment technique is not:

First, treatment of "osteopathic centres." There is no such thing as specific treatment of centres, as some of us may be led to believe; but there is most decidedly such a thing as specific treatment of osteopathic lesions, and this may be respective or irrespective of centres. A centre is nothing more or less than a physiological grouping of neurones for the special purpose of accomplishing some special act; for example, of contracting the walls of the stomach. It is not confined to a segment alone, but the co-ordination includes two or three or more segments. Naturally a lesion within an area of say four or five segments will affect the innervation of a viscus through vasomotor, visceromotor or secretory fibres. The specific features of the lesion arises not so much with the matter of regional location as with the character of maladjustment, and our ability to adjust with both a minimum of exertion and of "mussing the anatomy" as some one has said. "A nutritional centre" is simply the nucleus of the neurone;

The second point of what "not to do" is muscle kneading and stretching. Not but what this has a place and is good secondary treatment, but it must not be confused with the infinitely more essential and characteristic feature of specific adjustment. Many a refractory, contracted or rigid area will yield in no other way than by adjusting some local or distant lesion.

Lesions are very apt to occur in the anatomical weak points (where there is a "break in the continuity of structure"), and where habitual strain and stress is greatest, although not by any means confined to those areas, such as the innominata, fifth lumbar, lower dorsal, upper dorsal, atlas, etc. Then in addition to the above, the relationship of a joint should be considered from both the static and functional viewpoints. An abnormal static position may locate the key to the lesion while the functional relationship will readily supply the key to executing the technique.

A study and application of spinal column mechanics will do more to popularize osteopathy than all the publicity methods conceivable, for then it would not be a "forced" method, but a natural "deliver the goods" propaganda. This is not said in criticism of any extant publicity methods, but in the firm belief that if every one of us would more diligently strive to do better technical work than we are doing, the future will be more than assured. It is the clinical patient that occupies the judgment seat.

Elementary Study of Technique

To sum up: In our opinion, the study of practical technique should be more elemental. There has been too much confusing and clouding of the essentials by the various phases of general treatments, gymnastics, exercises, massage, stimulation, inhibition, osteopathic centres, and the like. Not that all these things are to be classed as "anatomy mussing"—time-killing stunts, but that they are utilized too often by those who really know better, as well as by the careless and inefficient, as osteopathic scapegoats. Consequently, a little of definitely applied mechanics with judicious attention to hygiene, diet and corrective exercises, will approach the Old Doctor's conception and success.

The kernel of all our experimental and clinical work is most practically

stated in the phrase: "Find it; fix it; and leave it alone."

APPENDIX.

Relative to the theory of trophic nerves an instructive series of experiments will be found in the Am. Jour. of Physiology, Sept. 1, 1910, "The Rate of Healing of Wounds in Denervated Skin Areas and its Bearing on the Theory of Trophic Nerves," by Clara Jacobson with an Addendum by Prof. Carlson. Among the conclusions are the following: "The results of the experiments reported indicate no diminution in the rate of healing of wounds in a denervated (sensory or sensory and motor) skin area as compared directly with that in a normal area." "It seems that so-called trophic disturbances may be due to vasomotor changes with increased susceptibility to infection or to the loss of protective reflexes from loss of sensitivity to injurious agents." Prof. Carlson adds: "I fail to see the possibility of this distinction (referring to Tschermak that there is 'no evidence for the existence of separate or specific trophic nerve fibres, but consider it highly probable that motor and sensory as well as afferent nerve fibres convey trophic impulses as an accessory function') between motor-sensory-tonic and trophic impulses in the same axis cylinder on the basis of our present knowledge or the advisability of retaining the term trophic for this conception. It seems to be true, in general, that moderate amounts of the special activity of organs are favorable to their metabolism and growth. The impaired metabolism and consequent atrophy in muscle, glands, and nerve centres following lesion of motor, secretory, and afferent pathways respectively can therefore be wholly accounted for as a direct result of the cessation of the special organ activity." * * * "The changes in muscle, gland and nerve cells in consequence of lesion of or altered activity of conduction paths are probably the result of disuse or altered special organ activity. And the so-called trophic changes in the skin and epidermal structure can be accounted for by altered activity of the capillary cells in consequence of the hyperemia, increased pressure and possibly interference with secretory fibres."

14 W. WASHINGTON ST.

NOTE—The student and physician will find the following works of special value: Louisa Burns's volumes; Morat's Nervous Physiology; Oppenheim's Nervous Diseases (Bruce translation); Guthrie's Blood-vessel Surgery; Cannon's Mechanical Factors of Digestion; McKenzie's Interpretation of Symptoms.

SOME ATAVISTIC CHARACTERS OF ABNORMAL BLOOD

LOUISA BURNS, M. S., D. O.
Los Angeles

While making a series of examinations of human and animal blood at various ages and under various conditions, the appearance in abnormal human blood of the cells and relationships characteristics of lower vertebrates was noted. It also appeared that the blood of young animals resembles that of lower forms, in certain characters. The consideration of these resemblances is the purpose of this paper.

TECHNIQUE OF EXAMINATION

The hemoglobin was estimated by Dare's hemoglobinometer, verified and corrected by Meischer's modification of von Fleischel's hemoglobinometer. The averages of several readings was taken.

The count of the erythrocytes and the actual count of the leucocytes were made with the same solution and counting apparatus. Toisson's fluid was used for dilution. The blood was diluted 200 times. Turck's ruling was employed in the counting chambers. Two cells were counted, including, for the erythrocytes, usually 200 small squares, rarely 100 small squares were counted. In any case, two different drops were counted. For the actual count of the leucocytes, 8,000 small squares were counted, using two different drops.

For the differential count, the smears were made thinly on cover glasses, and were stained with eosinate of methylene blue. Other stains were sometimes employed, in doubtful cases, for further study. These included the iodine stain, methylene blue, eosin, hematoxylin in various preparations, and slides were examined without staining.

Subjects—This report is based upon about 500 examinations of human blood. Normal persons of different ages, and under different dietetic and hygienic conditions, and patients suffering from various diseases, are included in the list

of subjects. About thirty animals, including fishes, amphibians, birds and mammals, both normal and abnormal, have been subjects also.

Names—Since there is so great diversity among hematologists in the use of the ordinary terms applied to the blood cells, and since there are so many atypical forms in the blood of the lower animals, it appears best to eliminate all specific names for classes of cells, and to use for each cell the adjectives which best describes it. For example, the cell usually called a lymphocyte is a mononuclear hyaline basophilic cell; the cell called myelocyte is (according to most authors) a mononuclear, finely granular cell, usually neutrophilic, etc. The descriptive terms are thus free from any physiological or developmental suggestion.

Hemoglobin—In the study of hemoglobin, three factors are to be considered: The amount of hemoglobin in a given amount of blood; the relative amount of hemoglobin in each erythrocyte; the relative amount of hemoglobin carried by a given bulk of erythrocyte protoplasm.

The amount of hemoglobin in a given amount of blood is determined by means of the instruments devised for that purpose. The most accurate of these are based upon color variations, and from this the actual amount of hemoglobin in grammes may be computed.

The hemoglobin percentage varies rather irregularly. In general, the hemoglobin increases in ascending scale of vertebrates, and from infancy to old age. In most diseases affecting the blood the hemoglobin is decreased, though in certain diseases, in which the amount of water in the blood is diminished, the hemoglobin percentage is increased.

The color index refers to the relative amount of hemoglobin carried by each erythrocyte. The hemoglobin percentage divided by the erythrocyte percentage gives the fraction which is called the color index. The actual amount of hemoglobin carried by each erythrocyte may be computed by dividing the amount of hemoglobin in each cubic millimeter by the number of erythrocytes in each cubic millimeter. The color index is high in non-mammals, since these have extremely large erythrocytes. Among mammals, the color index increases generally from the lower to the higher forms, and from infancy to old age. In most diseases the color index is lower than normal; in pernicious anemia the color index is high, because the presence of many abnormally large red cells.

Volume Index—The volume index gives the more exact relationship. The volume index refers to the relative amount of hemoglobin carried by a given bulk of erythrocyte cytoplasm. The volume index is the fraction secured by dividing the hemoglobin percentage by the erythrocyte bulk percentage. (Normal adult human blood is taken as 100 per cent. in each case.) The volume index is lower among the lower types of vertebrates, without exception, and is lower in human infancy than adult life or old age. The lower volume index is found in immature blood, and in all diseases affecting the blood or the nutrition, including pernicious anemia.

The power of the erythrocyte cytoplasm to carry a relatively large amount of hemoglobin is thus one characteristic of the higher development, the more nearly perfect specialization. The lowered volume index, that is, the lessened power of the erythrocyte cytoplasm to carry hemoglobin, may be considered an atavistic character.

ERYTHROCYTES

Below mammals, the erythrocytes are large, oval, nucleated, and usually rather irregular in size and shape. They are not usually variable in staining, have a distinct stroma, and often include a few granules which have variable affinities for stains. The color index is high because of the great size of the cells; the

volume index is invariably low. A, Figure 1, shows the erythrocytes of the blood of a small lizard.

Among mammals, the lower forms generally show the more distinct stroma, the lower volume index, the more irregularity of size, shape and staining, and the greater instability.

The young of all animals and man show erythrocytes of the more distinct stroma, with greater irregularities in size, shape, and staining, and of greater instability under slightly abnormal conditions, as well as after removal from the vessels. Oval nucleated erythrocytes have been described in embryonic human blood (Howell). A, Figure 2, shows erythrocytes of a normal hare. A, Figure 3, shows erythrocytes of an adult dog. In this, the most irregular forms were chosen from several smears of blood. A, Figure 4, shows placental blood. Two of these are nucleated. The irregularity of size, shape and staining should be noted in these. Figure 5 shows erythrocytes of the blood in a case of chlorosis.

The erythrocytes of the lower mammals become distorted more easily after removal from the vessels than do those of the higher forms, and the erythrocytes of the younger individuals, both human and animal, are the more easily distorted. Under abnormal conditions affecting the nutrition of the body, the erythrocytes become the more easily affected by removal from the body. Among the lower animals also, and among the young in any class, slighter nutritional variations, such as fatigue, poor nutrition, starvation, etc., affect the appearance of the erythrocytes more seriously.

In children, comparatively slight metabolic disturbances produce very marked changes in the appearance of the erythrocytes; conversely, in the presence of anemias appearing severe, improvement in the nutrition is followed by very speedy improvement in the blood picture.

The macroblast of pernicious anemia has long been considered a "harking back" to the invertebrate type of erythrocyte. The following qualities of individual erythrocytes may be considered of atavistic character:

The presence of nuclei;
Irregularities in size, shape and staining;
Low volume index;
Presence of granules and vacuoles in the protoplasm;
Lessened stability, both under abnormal physiological conditions and after removal from the vessels.

LEUCOCYTES

The total number of leucocytes per cubic millimeter varies more for different individuals among the lower mammals than among human beings. The same conditions seem to cause the same or very similar qualitative variations, but these variations are more extravagant than is the case with human blood. In the young, the same condition is present. Children's blood is more profoundly altered by slight disturbances than is the blood of adults. The physiological and the pathological variations are more extravagant in children than in adults. The maintenance of a fairly constant level of leucocyte count under physiological and slightly abnormal conditions is thus seen to be a function of adult and highly developed blood. The habit of excessive fluctuations from the usual leucocyte count is thus an atavistic characteristic. This relationship may be compared, not too closely, with the development of the power of maintaining a constant temperature level under physiological or only slightly pathological conditions.

The remarkable variations in the number of leucocytes to the cubic millimeter in the leukemias, in some cases of chlorosis and secondary anemia, and to a certain extent in pernicious anemia, is probably of atavistic type. These blood crises are sometimes due to recognizable causes, such as would account for the much slighter physiological variations,

but are often not to be accounted for by any methods now at our disposal.

Leukocytes are to be classed as hyaline cells, whose protoplasm may contain a few granules, but which is itself non-granular, and granular cells, in which practically the entire protoplasm appears to be granular.

Hyaline cells are invariably basophilic. If granules are present, they also are basophilic. The nuclei are always large, and frequently a very thin layer of protoplasm only partly surrounds the nucleus. Notched nuclei are often found. Horse-shoe and looped forms, and two or more nuclei are found only in the blood of lower animals, and in human blood under very abnormal conditions. In general, the lower the class of animal, the younger the individual in each class, and the more severe the nutritional condition, the greater is the irregularity of the nuclear outline and position. (See B, Figure 1, 2, 3, 4, 6.)

Hyaline cells make the larger percentages of the leucocytes in the blood of the lower animals, of the younger individuals in all vertebrates examined, and in human blood in conditions associated with poor nutrition. In a few cases of starved or poorly nourished cats and dogs, the relative and absolute count of hyaline cells exceeded the normal counts of animals of the same class.

In birds and amphibia, the hyaline cells may be divided into three classes, according to their size, staining and nuclear structure. The smallest stain very deeply. The nucleus is round and centrally placed. The protoplasm is very scanty and may contain a few granules. Barely notched and eccentric nuclei are found. These probably are homologous with the small lymphocytes of the blood of higher animals, though they are rather smaller than these.

The medium hyaline cells stain less vividly and have notched nuclei, often eccentric. The nucleus may be horse-shoe shaped, rarely double. These cells rarely contain granules, and these, when present, are large and intensely basophilic. They are probably homologous with the large lymphocytes of higher blood.

The largest hyaline cells have very large nuclei, often eccentric, sometimes naked on one side. They are not homologous with any cells found normal human blood, and have not been found in the blood of any mammal included in these examinations. In the blood of a patient suffering from spleno-medullary leukemia, shortly before death, great numbers of these very large, hyaline cells were found. A few have also been found in the blood of other patients suffering from severe secondary anemias. B, Fgure 1.

Atavistic characters of hyaline cells include:

Increased numbers, both relatively and absolutely;
Irregularity, duplication and eccentricity of nuclei;
Presence of granules in protoplasm;
Presence of extremely large forms.

VARIOUS GRANULAR CELLS

Basophilic—In these cells the protoplasm seems to be composed almost, or quite entirely, of large granules, intensely basophilic. The granules are usually round, but may be slightly longer than wide. They are larger and more irregular in the lower vertebrates than in mammals. The nuclei of these cells varies from the single round central nucleus to the polymorphic types.

Granular basophilic cells are very plentiful in the blood of non-mammals, and the lower mammals, more rarely found in higher mammals, and often not to be found in normal human blood at all. They are more plentiful in the blood of the young in all classes examined; and in abnormal human blood they may or may not be increased. (C, Figure 1, 2, 3, 4.)

Forms intermediate between the hyaline cells and the basophilic granular

cells are found in the blood of non-mammals, and the lower mammals, but not often in human blood. These are found sometimes in the blood of patients suffering from severe mal-nutrition.

The presence of increased numbers of granular basophiles, and of forms intermediate between hyaline and granular basophiles, and increased size of the basophillic granules, may be considered atavistic characters.

Eosinophilic—The absolute and relative numbers of easinophiles vary so greatly that no conclusions can be given at this time concerning their numerical or percentage relationships. E, Figures 1, 2, 3, 4, 6.)

In certain lower mammals, the granules are larger than in human blood, stain more deeply, and may be rod-shaped. (E, Figure 4.) Under certain abnormal conditions the eosinophiles of human blood assume similar appearances.

Amphophilic—In the blood of non-mammals and lower mammals granular cells are found in which the granules stain deeply with eosin alone, or with methylene blue alone, while in mixed stains they may take either which happens to be predominant in that particular mixture, or some granules may take one and some the other. In Figure 2, D, are cells in which some of the granules are eosin-stained, others have taken the methylene blue, while others appear to have taken both stains and are of a puplish tint. These cells are not found in the blood of the higher mammals. Under certain abnormal conditions, notably the leukemias, they may be found in human blood.

Neutrophilic—Neutrophilic cells are finely granular, and contain from one to many nuclei,—sometimes eight to ten. These nuclei are usually, if not always, connected by fine strands of nuclear matter. (P, Figures 2, 3, 4, 6.)

The statement is sometimes made that the non-mammalian blood contains no neutrophiles. In the blood of fishes, amphibia and birds, small cells with one or two nuclei, usually eccentric, are found. These cells are very unstable, and disappear under any except the most careful handling and staining. This excessive instability doubtless accounts for the frequent reports of their absence.

A form of neutrophile is found in the blood of fishes which is of interest because of its resemblance to the "Turck's irritation forms" found in very abnormal human blood. The cell is rudely triangular, with rounded corners. The single round nucleus occupies one of the angles. The protoplasm is finely granular, and stains very feebly with neutral stains.

The great instability of the neutrophiles is an atavistic character. In F, Figure 6, are shown neutrophiles which show this instability and are atavistic in character. In lower animals the bare nuclei are often found, larger than ordinary nuclei, and evidently the remains of neutrophiles, since often a few neutrophilic granules are found around them, or in their vicinity.

The mononuclear neutrophile, and the neutrophile with few nuclei, are to be considered the younger type, while the neutrophiles with many nuclei are of a senile type. This probably is true in reference both to individual cells and to the relative numbers present in the blood. Arneth's index is based upon a recognition of this relationship. In the blood of the lower mammals and of the younger individuals, the larger numbers of mononuclear forms are found. The existence of increased numbers of mononuclear neutrophiles, and of those with very few nuclei, is to be considered atavistic, while the existence of increased numbers of neutrophiles having five to eight or more nuclei is to be regarded as a senile condition of the blood.

The form of the nuclei is of interest. The adult normal polymorpronuclear neutrophile is most frequently characterized by a nucleus which resembles a long

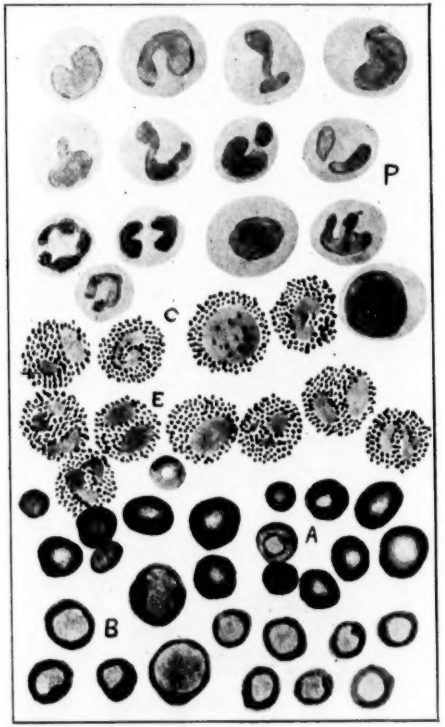

FIG. IV—PLACENTAL BLOOD

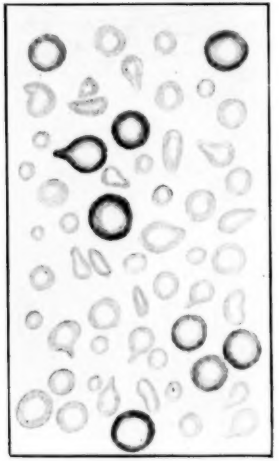

FIG. V—CHLOROSIS

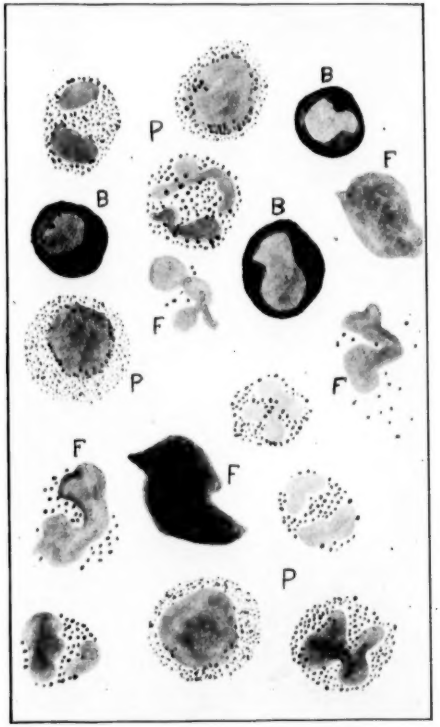

FIG. VI—JAUNDICE

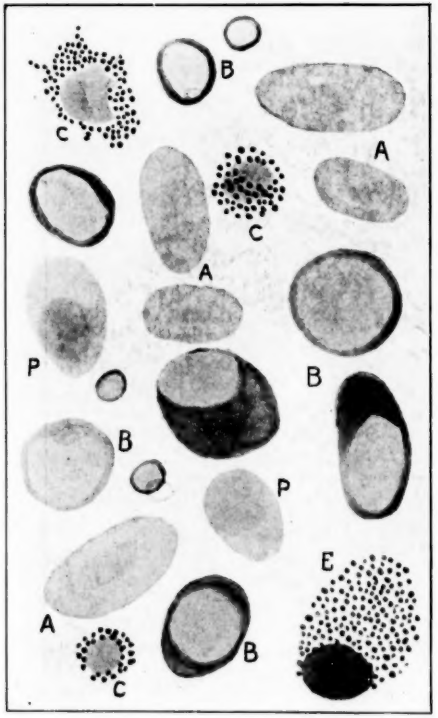

FIG. I—BLOOD OF LIZARD

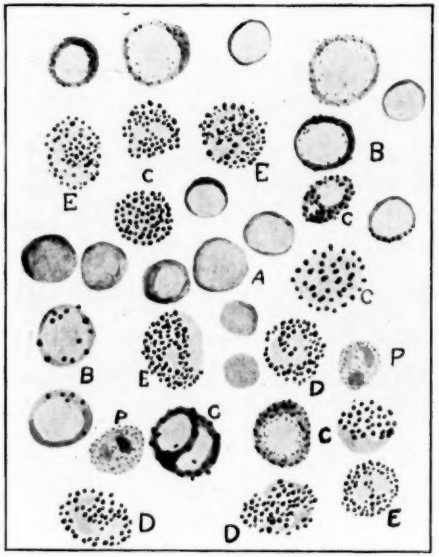

FIG. II—BLOOD OF HARE

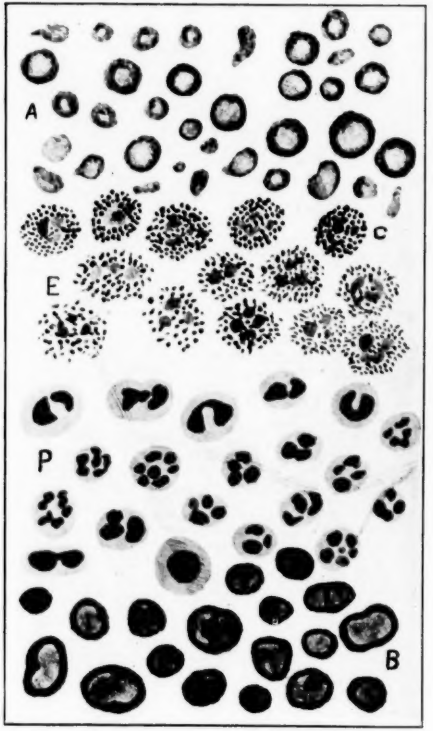

FIG. III—BLOOD OF DOG

twisted ribbon, but which has no marked swellings anywhere. The neutrophile of immature blood is more irregular in form, and presents swellings along its length. P, in Figure 3 and Figure 4, show the nuclei characteristic of blood which immature, in case from the phylogenetic and in the other case from the ontogenetic, standpoint.

P, in Figure 6, shows atavistic forms of neutrophiles from a case of jaundice with marked anemia. The large numbers of mononuclear cells, the increased affinity for eosin, the swollen outlines of the nuclei in the polymorphonuclear neutrophiles, is atavistic.

The relative and the absolute numbers of neutrophiles increase from the lower to the higher animals, and from the younger to the older individuals. They are abnormally increased in human blood under certain abnormal conditions, notably in certain infections and in certain leukemias.

The atavistic characters of the neutrophiles are:

Decreased numbers, both relatively and absolutely;

Increased proportions of mononuclear forms, and of these with few nuclei;

Swollen and bizarre nuclear shapes;

Fractured and unstable cells;

Increased size of the granules, with increased affinity for eosin.

Clinic patients in The Pacific College of Osteopathy, suffering from conditions associated with faulty development, such as cretinism, dementia precox, etc., have been found to show many atavistic characters in the blood, as well as in the body. The low hemoglobin, low color and volume index, presence of irregularities of size, shape and staining, of vacuolated and granular erythrocytes, the excessively large lymphocyte count, increased numbers of mononuclear neutrophiles, increased numbers of neutrophiles with few nuclei, and with swollen nuclei, the increased affinity for eosin, and the increased numbers of basophiles, all indicate the presence of atavistic qualities in the blood cells of these patients, as well as in the rest of the body and the brain.

CONCLUSIONS

The ontogenetic development of the mass of the blood cells, as well as of the individual cells, follows the phylogenetic development in many respects. This statement applies to the relationships of the various classes of leucocytes, as well as to their absolute numbers, and it applies also to the variations in the blood cells under physiological or pathological conditions.

Under abnormal conditions of the circulation, the nutrition, or the metabolism of the body, the blood, as a mass, tends to revert to its primeval condition, and the individual cells revert to something of their primeval appearances. It is not possible to determine whether the cells themselves actually assume primeval appearances, or whether the formation of new cells, under the abnormal conditions becomes imperfect, of a more or less embryonic type, and thus the cells found on examination present the characteristics of phylogenetically and ontogenetically immature cells. The latter view is inherently more probable, and it is further supported by the fact that certain irritants in the circulating blood seem to bring about first an increase in the relative numbers of cells showing the characteristic of old age, while the continued presence of the irritant is associated with an increased number of the phylogenetically younger or atavistic cells.

PACIFIC COLLEGE OF OSTEOPATHY.

Authors consulted: J. C. DaCosta, "Clinical Hematology;" R. C. Cabot, "Clinical Examination of the Blood;" Emerson, "Clinical Diagnosis;" Ewing, "Clinical Pathology of the Blood;" J. A. Miller and Margaret A. Reed, "Leucocytes in Pulmonary Tuberculosis and Pneumonia;" Wood, "Chemical and Microscopical Diagnosis;" Reports and Reviews from various journals of physiology and medicine.

A RE-STATEMENT OF SOME RESEARCH FACTS

J. DEASON, M. S., D. O.
Kirksville, Mo.

"How much truth is there in what *we know?*" This is probably the commonest question now before the medical profession as well as those practicing other systems of healing.

It is the purpose of medical and osteopathic colleges, as well as other schools teaching the science and art of healing, to impart instruction along certain fixed lines which are more or less dogmatic. After the student has become a practitioner and has had sufficient experience to enable him to arrive at safe conclusions relative to the true value of *his* method of therapy, he longs for an opportunity to talk over his experiences with doctors of his own and other schools. He wants to know if his successes have really come as a direct result of the proper use of the right method, and if his failures have been due to his own inability or if his system of therapy is at fault.

There are two institutions whose chief function is to serve the physician in this way. One is the institution of research in which the various theories may be put to experimental test; the other is the post graduate school in which the doctor may learn these new things which have been found by experiment and practice to be the best method to follow under certain conditions. The post graduate school is the place where physicians mingle together, learn from each other and from specialists, and where each one in his turn must forget and relearn, and in this way progress.

My friend and I were students in just such a school when the discussion, which I will attempt to narrate, arose. It was a good school. A school in which the instructors often admitted the truth about what they did not know, disregarded many of the antediluvian drugs and considered tuberculin, meningococcus serum and many others of our newly discovered "specifics" as yet in the experimental stage. They were, for the most part, of that type who knew and yet knew that they did not know and were frequently honest in the admission of these facts to the students. When I say "they knew" I mean that they knew the most rational methods of internal medication and by saying "they knew that they did not know" I mean that they frequently realized their inability to diagnose, in which cases they prescribed emperically, saying, "We'll try the bromides," or "We'll try the salicylates and see if we get any improvement."

My friend, who was a graduate of one of the best medical schools and had had eight years of careful observation in practice, was a very progressive man. He was not an ordinary "dock," he was a physician. He knew that medicine was not a cure-all and that there was good in other systems of healing. He knew that the drug business is constantly decreasing and he knew this was due to the fact that people are gradually, but surely, losing confidence in drug therapy. He said that the A. M. A. was considering a complete revision of their system of internal medicine and he knew that the United States Pharmacopeia, which is revised decennially, dropping the official drugs which have been found to be valueless, is gradually becoming a much smaller book, and said that twenty drugs could easily be selected from the many that would suffice every need. Dr. X. said he was not an advocate of "medical therapeutic nihilism," as many of the researchers in pharmacology are now teaching, "but that these institutions have shown that a great many of our old emperical methods of internal medication are unreasonable and that's why I'm investigating other systems."

"What system are you investigating?" I asked. "Spondylotherapy," was the answer. "Do you know anything about it?" "Yes," I answered; "it is something of a parody on osteopathy. Dr. Albert Abrams unquestionably has some

good ideas, but as Dr. Farmer puts it, 'He is yet about four laps behind osteopathy.'"

"You know something about Spondylotherapy?" Dr. X. asked. "Yes, I have read some of his magazine articles, the last revised edition of his book and have tried some of his methods in the laboratory. I believe Dr. Abrams has gotten many of his ideas from osteopathic literature, and if so, he has certainly not given us due credit. He does not mention or make reference to any of the many different series of research work that have been done, nor does he mention any of the names of our several research workers in his writings. It seems to be his intention to state these 'new discoveries' as all his own." "Yes," said Dr. X. "I do not doubt that this is true and I believe the medical profession realizes this seemingly unfairness in the man."

"We, as osteopathic physicians, Dr. X., do not object to Dr. Abrams or any one else investigating osteopathy or doing experimental work along osteopathic lines. On the other hand, we welcome such work and would be glad to furnish reports of our work to anyone who will come into the field of experimental osteopathy, work earnestly, publish the results of his findings, giving due credit to those who have antedated him and let us have a chance to confirm or disprove his statements. This is the unwritten law among all true scientific investigators and he should be willing to live up to it. He has not done so. He has asked for reports of our investigations and has been offered them if he would conform to the above requirements, but he has not shown his willingness to do so. Since he has not been in possession of these reports, he has not been able to know what the theories and teachings of osteopathy really are, but has gone ahead blindly making claims for which he furnishes no experimental evidence."

"Do you mean to say," asked Dr. X., "that osteopathic research work antedates Dr. Abram's work?" "Yes," I answered; "Dr. Louisa Burns has, after much experimental investigation, written a more comprehensive report of the central and peripheral nerve centers, which can be had in book form, than can be found in Dr. Abram's books.

"I do not doubt that this method of treatment, especially the concussion, is often effective. The so-called stimulatory treatments, when applied to spinal segments, are practically always followed by functional effects on the viscera supplied by nerves from these segments, and I would refer Dr. Abrams to series No. 2 published in the April, 1911, number of the *Journal of Osteopathy*, and to series No. 7 published in the JOURNAL OF THE A. O. A., July, 1912. These facts, however, are not new to osteopathy. The reports of the research work referred to are only confirmations of principles which have long been in use. It is my opinion that in some cases where concussion is used, accidental correction of subluxations causative of the trouble may occur, and therefore the treatment is curative."

My friend now began to ask other questions, and as they were, for the most part, good questions, I shall review them with the answers.

"What reasons have you for believing that the so-called osteopathic lesion is a causative factor of disease?" asked Dr. X. To answer this I began, as most doctors do, by telling of their "phenomenal cures," but Dr. X. immediately stopped me by saying that "Case reports are no particular evidence of the value of a system of therapy unless a very great number be accurately collected and put into statistical form and even this is often valueless as statistics may be used to prove or disprove anything. It is such common practice of patent medicine advertisers and charlatans that we, as reputable physicians, must resort to more scientific methods. It is so easy," continued Dr. X., "for a doctor to allow himself to be deceived by his own results. For example, during the first five years I was in practice I treated more than four

hundred cases of typhoid fever without a single fatality and naturally thought I could cure all such cases. During the next year I lost fifty cases out of one hundred treated. You see we occasionally meet with an epidemic in which the infection is much more virulent and then all of our methods fail, while almost any one can successfully treat the ordinary cases."

"To answer you more scientifically," I said, "I will cite you to experimental evidence. I have, with the aid of my assistants, operated about five hundred animals, dogs, monkeys, cats, rabbits and guinea pigs, in which we have studied, in various ways, the effects of osteopathic lesions, Drs. McConnell, Farmer, Burns, Whiting and others, have been doing similar work for many years, and I believe we have actually done more and better work, in proportion to the length of time our school has existed, than any other school of therapy. We have shown in Series Nos. 2, 7, 9 and 10 that by producing perverted conditions, strains in the vertebral column, that various perverted physiological reactions, such as abnormal heart beat, increased blood pressure and other visceral reflexes may be effected." "But may not these effects have been due to massage or other muscular manipulations?" asked Dr. X. "No," I answered. "We tried muscular massage and many other passive movements and the effects were only very temporary and incomparable to the movements with fixation which produced 'vertebral strains' and lesions." "Have you ever tried producing permanent bony lesions in healthy animals?" Dr. X. next asked. "Yes," I answered; "in our series No. 4, the results of which are published in the July, 1911, number of the JOURNAL OF THE A. O. A., we observed the effects of permanent lesions on thirty-three dogs. These dogs were all normalized, and only those dogs were used which showed no physical defects. These animals were then placed under deep ether anesthesia and subluxations were produced in mid- and lower dorsal regions. After lesion, all animals showed abnormal urinary findings, such as albumen and sugar." "Might not this trouble have come from injury to the spinal ligaments, breaking of bones or something of that nature, causing local inflammation and reflex effects?" Dr. X. asked. "No, this could not have been possible, because we were always very careful not to break any bones, produce luxations or ligamentous tears."

"I see," said Dr. X., "but how do you know that these artificial lesions, which you say you produced, would continue to exist and how do you know that these functional affections would continue if the lesions did remain permanent?" "A careful examination was made of each animal every day," I answered, "and by palpation the lesion could easily be detected. In some cases the lesions were accidentally corrected, and in these animals the functional disturbances would almost immediately disappear. Post-mortem examinations were made of each animal after they had been kept for a sufficent length of time and dissection revealed the condition of lesion with inflammation of the part lesioned. Some of these animals were kept in lesion for a period of seven months and showed functional disturbances during the entire time." "If the bony lesion is so effective in producing disease in animals, why do not dogs suffer from lesions as you osteopaths claim humans do?" asked Dr. X. "They do," I answered; "and may be found in dogs to be a cause of disease, just the same as you medical men would find they are in humans if you knew how and really looked for them. Our dog No. 33, reported in series No. 4, had a readily palpable lesion in the upper dorsal region. He was a fine animal about three years old, had an avoracious appetite, but lost weight constantly. Upon post-mortem, a very pronounced lesion was found. A distended and otherwise pathological stomach filled with undigested food, which had been eaten several

hours previous to the time he was killed for examination. Since then we have observed this and Dr. Robb and myself found a great number of animals, (see series No. 9, published in the July, 1912, number of the JOURNAL OF THE A. O. A.) suffering from what the medical doctor would call an idiosyncrasy or some functional trouble resulting from an idiopathic source. We almost invariably found bony lesions in such animals."

"Now," said Dr. X., "if the artificial lesion is causative of functional disturbances you should be able to show pathological changes following such lesions." "We have, Dr. X.; Dr. McConnell has shown this in a great many animals. These pathological lesions, both macroscopic and microscopic, have been shown to exist in various tissues of the body following the production of artificial lesions. Reports of this work by Dr. McConnell may be found with accompanying photomicrographs in Bulletin No. 1 of the A. T. Still Research Institute and in various other reports published in this journal. In our Series No. 12, published in the last July issue of the JOURNAL, we have confirmed this work."

"I have just one more question," said Dr. X., "which, if you can answer in the affirmative, will convince me that you have just right to your claims. Have you ever shown that, after an artificial lesion had been produced and permanent functional disturbances had followed, that the correction of the lesion would be followed by relief of the symptoms?" "Yes," I answered. "In our Series No. 12 mentioned before, we produced lesions in the mid- and lower dorsal regions of eight monkeys, five of which developed a severe diarrhea, one was slightly constipated and the other two showed no abnormal symptoms. The diarrhea in the five monkeys continued for from one to two weeks when corrective treatment was given. All of the animals so treated made complete recoveries in from one to two days." "Could not the food or environment have had something to do with the diarrheal condition?" asked Dr. X. "In this case it is not at all likely that it did, because all animals received exactly the same kind and amount of food and to further confirm our findings we lesioned these animals a second and a third time with similar results, each time corrective treatment was followed by recovery. In addition to this we had other monkeys as 'controls,' to be sure that dietetic and thermic influences were not responsible, and these showed no such disorders."

"Are there any further reasons," asked Dr. X., "for believing that the functional disturbances are due to the bony lesion instead of conditions similar to spinal shock, due to the trauma caused during the production of the artificial lesions?" "I have discussed this question quite in detail, Doctor, in my report of Series No. 10, published in the last July issue of the A. O. A. JOURNAL. The effects of the osteopathic lesion are so different from those of spinal shock and the fact that in many osteopathic lesions the cause is not traumatic, immediately differentiates them."

"I understand," said Dr. X., "that a common explanation of the bony lesion is that vertebral subluxations cause pressure on nerve trunks. Now, by a careful examination of the spine, it is not easy to see how this could occur." "I must agree with you," I answered, "that direct pressure on nerve trunks, in my opinion, is very uncommon. It might occur in lesions of the innominate and we have done some work on this, but it is not yet completed. I have never found an experimental lesion that caused direct pressure on the spinal nerves. The congestion caused by the lesion might, and I think does, cause a slight pressure, but I believe the interference with the circulation to the cord and nerves, caused by congestion, has more to do with the functional interference. The results of series Nos. 8 and 9, published in the July, 1912, number of the JOURNAL, I think, throw some light on this question."

"Can you stimulate or inhibit at will,

osteopathically, abnormal functional activities, as medical men claim they can do by the use of drugs?" asked Dr. X. "The question of osteopathic stimulation and inhibition is rather vague," I answered. "Some osteopathic physicians claim they can regulate these functional activities at will, but the results of our work, series No. 2 and 7, would seem to discredit such statements. I believe if there is an excessive functional activity of any one or more organs or conversely, if there is a decreased functional activity due to bony lesions, and such conditions are common, that corrective treatment will normalize the functional activity as we have shown by experiment; but this is all."

"Do you believe there is a specific spinal area, lesions in which are responsible for certain disease conditions?" asked Dr. X. "Not in all cases. There are, of course, certain regions of the spine, lesions of which are more likely to produce functional disturbances of certain organs because of the nerve supply, but the results of our work (Series 2, 7, 9 and 10) show that such areas are not confined to one or even two or three vertebral segments; for example, manipulation of the upper thoracic region nearly always causes an increase in heart beat and blood pressure, while manipulation of the lower dorsal and lumbar region seldom causes such increases, and is often followed by a decrease in blood pressure, but I believe not enough work has yet been done to definitely settle this question."

"I can understand," said Dr. X., "how osteopathic treatment or spinal massage could be of much value in rheumatic conditions and the like, but how could an osteopath hope to treat successfully visceral disturbances, such as diseases of the heart, lungs, stomach and intestines?" "I will answer your question, Dr. X.," I said, "by first correcting your understanding of an osteopathic treatment which is not in any sense massage. Osteopaths often use massage just as most other physicians do when such treatment is indicated; but the fundamental principle of osteopathy is adjustment of perverted structural relations. If a proper adjustment can be made in one minute, as it often can be done, this is all that is necessary. In the treatment of the monkeys for diarrhea as described in Series No. 12, I seldom treated the animals longer than a few seconds; just corrected the structural perversions; that was all. There was no massage or other kind of treatment given. I believe the least manipulation one can do to effect adjustment is all that is indicated in many cases. This, however, does not apply to all conditions.

"Now, to answer your other question: We have shown experimentally on about 150 animals (Series 2, 6, 7, 8, 9, 10, 11 and 12) that visceral disturbances practically always follow artificially produced bony lesions. We have shown that decreased and even reversed peristalis of the stomach and intestines, as well as abnormal heart beat and variations in blood pressure, etc., follow these acute lesions. Now, why should we not hope to treat such conditions most logically by osteopathic corrective treatment, which removes the cause of the trouble?" "Of course," said Dr. X., "I have no way of combating such argument and since you have established these as facts by experimental research, as well as by practice, I am forced to admit that you have much reason for your claims. But take for example diarrhea: We know that by medical treatment a thorough cleansing of the intestinal tract usually is effective in relieving the trouble. How would you explain this?" "In such cases, Dr. X.," I answered, "we can do all that you can do and more. We can cleanse the gut and by osteopathic treatment normalize the nerve and blood supply to the intestestinal tract so that it will remain clean. We can successfully treat those cases in which internal medication often fails. Few up-to-date medical men now believe in the value of internal antiseptics. There is only one bacteriologist who now holds

that such drugs are effective, and this man has a proprietary medicine on the market; therefore, 'there's a reason.'" "I will admit," said Dr. X., "that research and practice in the medical world are fast disproving the value of internal antiseptics, but how can osteopaths treat the acute infectious diseases without serums and antitoxins?" "Osteopathy, as a profession or as a school of therapy," I answered, "takes no stand against vaccines or serums, as far as I know, and we would be just as pleased as you to accept any or all such methods that can be demonstrated to be of net value, but we believe that the value of these methods has been much overestimated." "Yes," said Dr. X. "Last year there was a very widespread epidemic of cerebro-spinal meningitis in the community in which I practiced and I doubt if the serum treatment, which was used quite extensively, did any good at all. On the contrary, I have much reason to believe it did harm in many cases." "We have, Dr. X.," I said, "had excellent success in treating the acute infections. We can usually make the patient rest well by treatment and thus avoid the undesirable after-effects of opiates, which are used by medical doctors for this purpose. We can increase the elimination, improve the circulation and nutrition and thus avoid the complications better by osteopathic than by medicinal means. We have done some research work to show that bony lesions predispose to infections, by reducing the resistance of the patient, thereby increasing his susceptibility. In our report on Series No. 12, we have described two cases in which monkeys, after lesion, were more susceptible to infectious disease than the other monkeys which were not lesioned."

"Have you done any research work along bacteriological lines?" asked Dr. X. "Yes," I answered. "Dr. C. A. Whiting has shown that osteopathic treatment increases the opsonic index and thus increases body resistance; a report of some of his work may be found in the last July issue of the JOURNAL, and at the recent meeting of our National Association he made a further report of his work, which showed that the opsonic index was raised by manipulation from 33⅓ to 50% in almost every case tried, and that it remained up for from four to six hours. This experimental work is now being continued by several competent bacteriologists. Then, too, Dr. Louisa Burns has soon to be published, on some of the obscure blood diseases, in which she finds the blood cells in many of them reverting to the type found in the lower animals and even characteristics found in fishes and reptiles. Dr. W. C. Brigham has also been making an experimental study of the bacterial vaccines and Dr. Archer and myself, aided by several assistants, have made quite an extensive study of smallpox vaccines." "Well, I must admit," said Dr. X., "that you osteopaths are much more scientific and liberal in our views than I had supposed. Have you an institution for research in which you do all of this work?" "We have," I answered, "a research institute fund and a proposed building which we hope soon to have in operation in this city (Chicago). The research work for the most part has been conducted in the various colleges and by physicians in private practice, under the direction of the Council of the A. T. Still Research Institute, which is maintained by the profession." "I should think," said Dr. X., "that it would be well for you to have a post graduate school also, where your graduates could have the advantages of such work as we are getting here." "Yes," I answered, "for the post graduate work, as given in this school while it is very good, does not answer our purposes, as your methods of examination and treatment are so different from ours. An osteopathic physician cannot get the kind of work he most needs in a medical school."

INVESTIGATIONS OF THE OPSONIC INDEX

C. A. WHITING, Sc. D., D. O.
Los Angeles, Cal.

During the winter of 1911-12, I began a series of investigations for the purpose of determining how long the opsonic index is affected by mechanical manipulation. It will be remembered that as early as 1884, Mechnikoff discovered the fact that the white blood corpuscles possess the power of destroying many bacteria as they enter the tissues of the body. For a number of years it was supposed that this was the only defensive measure which the body employed against the invasion of parasites; but at a later time, it was found that when parasitic invaders enter the body, a response is made to them, not only by the phagocytes which devour them, but that specific substances were produced in the blood, which dissolved them. These substances were called lycins; and soon after this discovery, it was shown that another class of bodies was produced, which are known as agglutinins, the function of this latter substance is to cause bacteria to adhere to each other until they form large masses or clumps. The next discovery was one of great practical importance, and was that phagocytosis is largely dependent upon the bacteria being acted upon by substances produced in the blood, which are called opsonins. Careful experiments showed that unless the bacteria were acted upon by opsonins, they were not very readily destroyed by the phagocytes. It was also shown that the opsonins in the blood may be produced as a result of stimulation by bacterial toxins, contained within the bodies of the bacteria, and from this discovery arose the important practice of vaccine therapy.

Somewhat more that two years ago, I discovered, as a result of considerable experimentation, that mechanical stimulation of the liver and spleen, would also increase the opsonins in the blood; at least, so far as the opsinins acting upon the bacilli of tuberculosis is concerned. A few experiments and some clinical experience seemed to indicate that this was also true of other bacteria. If it is indeed true that the opsonins are increased by liver and spleen stimulation, it is a most important fact; for it is highly improbable that the vaccine methods can be used without inflicting more or less injury upon the organism. I believe it is a biological truth that *no substance should ever be introduced into a living organism, which cannot, by digestion and assimilation, become a constituent part of that organism.*

The last experiments which I made and the results of which I append to this article, were made for the purpose of determining how long the increase of opsonins lasted after stimulation. As these experiments were made during the session of The Pacific College of Osteopathy, it was impossible to work with any considerable number of people, as the same individual must be accessible for a number of hours in succession. These experiments were conducted upon one man and one woman, both being, so far as known, in perfect health. The technic of the work was as follows:

TECHNIC

Before any stimulation, the power of the leukocytes to destroy the bacilli of tuberculosis was determined. All of these experiments were based upon a count of 100 leukocytes and the average number of bacilli which these leukocytes were able to injest, was called the phagocytic index. Immediately after this determination was made, the subject was subjected to mechanical stimulation of the liver and spleen region. At varying intervals of time after this, the phagocytic index was determined, with the results shown in these tables.

It is needless to say that a certain allowance must be made in work of this kind for error, and as both of the people experimented upon were particularly busy people, the results may have been somewhat vitiated by their mental and physical activity. It will be observed that

the effects of stimulation disappeared in between four and six hours. If further experimentation shall show that this is universally the case, we have here a key to the length of time which should elapse between osteopathic treatments in cases of acute diseases. It is with no inconsiderable hesitation that I present these fragmentary and incomplete results; and it is with full knowledge that further investigation may show serious fallacies, that I send this matter to the printer; but our profession is young, and our research work is in its extreme infancy, and perhaps the publication of results, which will need careful revision, will do good rather than harm.

MR. Y, APRIL 8TH, 1912.

Phagocytic Index before stimulation	3.42
One-half hour after stimulation	4.21
Two hours after stimulation	4.44
Three hours after stimulation	3.83
Four hours after stimulation	3.12

MISS X, APRIL 8TH, 1912

Phagocytic Index before stimulation	4.23
One-half hour after stimulation	6.42
Two hours after stimulation	5.17
Three hours after stimulation	4.76
Four hours after stimulation	4.34
Five hours after stimulation	3.92

MR. Y, APRIL 9TH, 1912

Phagocytic Index before stimulation	3.80
One-half hour after stimulation	3.00
Two and one-half hours after stimulation.	3.10
Four hours after stimulation	3.40
Five hours after stimulation	3.40

MISS X, APRIL 9TH, 1912.

Phagocytic Index before stimulation	5.00
One-half hour after stimulation	7.30
Two and one-half hours after stimulation.	7.10
Three and one-half hours after stimulation	6.50

MR. Y, APRIL 10TH, 1912.

Phagocytic Index before stimulation	3.50
Forty-five minutes after stimulation	5.35
Two hours after stimulation	5.42
Three hours after stimulation	3.72

MISS X, APRIL 10TH, 1912

Phagocytic Index before stimulation	4.51
One-half hour after stimulation	5.26
Two and one-half hours after stimulation.	4.64
Three and one-half hours after stimulation	3.26

MR. Y, APRIL 11TH, 1912.

Phagocytic Index before stimulation	4.01
One hour after stimulation	6.02
Three hours after stimulation	5.23

MR. Y, APRIL 12TH, 1912.

Phagocytic Index before stimulation	4.61
One-half hour after stimulation	6.71
Two hours after stimulation	5.48
Three hours after stimulation	3.72
Four hours after stimulation	3.91
Five hours after stimulation	4.67

MISS X, APRIL 13TH, 1912.

Phagocytic Index before stimulation	4.89
One-hour after stimulation	5.78
Two hours after stimulation	6.04
Three hours after stimulation	5.52
Four hours after stimulation	5.64
Five hours after stimulation	5.01

MR. Y, APRIL 16TH, 1912

Phagocytic Index before stimulation	4.56
One-half hour after stimulation	6.87
Two and one-half hours after stimulation.	4.37
Four hours after stimulation	5.36
Six hours after stimulation	3.27

MISS X, APRIL 20TH, 1912

Phagocytic Index before stimulation	3.85
One-half hour after stimulation	5.54
Two and one-half hours after stimulation.	4.89
Four hours after stimulation	4.02
Five hours after stimulation	4.07
Six hours after stimulation	3.59

PACIFIC COLLEGE OF OSTEOPATHY.

EVERY MAN'S SPINE DEFORMED —A RESTATEMENT OF OSTEOPATHIC FUNDAMENTALS

EARLE S. WILLARD, D. O.
Philadelphia

PART ONE.

The Ideal, "Normal" or Absolutely Perfect Spine.—When we postulate that man is a machine, and assert, therefore, that bodily structure determines function, the fact we wish to emphasize is this: the adjustment between the musculoskeletal framework and the nervous system is essentially the same in principle as that which governs and guages the movement of every inanimate mechanism. This does not imply that all physiological activity in movable tissues is purely mechanical; indeed, certain motor phenomena are not known to coincide with structural changes *per se*. However, the body-framework is comparable to a machine in that a demonstrable principle of mechanics underlies voluntary movement.

This principle or axiom, widely quoted in authoritative treatises on osteopathy, is termed interdependence of structure

and function. From it is deduced the corollary that tissue-perversion and the resulting mal-function can best be overcome by therapeutic adjustment mechanically directed. Yet, notwithstanding this conclusion, the most practical and profound aspect of the analogy between man and a machine has been overlooked. The orthodox osteopathist in his study of man's vital machinery has lost sight of the fact that an elaborately constructed machine always has some parts that are structurally weaker than others. His oversight in this has led him to predicate an equal degree of perfection throughout the physical mechanism. In consequence a fallacy concerning our distinctive theory of diagnosis has become deeply rooted in the mind of our profession; and it is to combat this fallacy that the following tentative restatement of fundamental principles is made.

According to established osteopathic teachings, the human spine is to be placed in the same category with organs that are equipped structurally and functionally for a prompt and efficient reaction under constantly changing intracorporeal activity. These teachings specify that in health the vertebral column is normal or perfect; that normal spinal structure, including curves, contour and general construction, is a prerequisite to health.

In open contradiction to this teaching concerning the perfect construction and configuration of the spine, osteopathy teaches that in the vast majority of diseases therapeutic adjustment is called for in the human vertebral column. That is to say, the orthodox osteopathist classes the musculo-vertebral system with bodily structures that have attained the highest degree of structural efficiency; and in the same breath he maintains that, no matter where disease originates in the organism, the spine is reflexly implicated. Those who take this inconsistent view of the matter see no further than the bare text-book statements of anatomy and physiology. They fail utterly to see the incongruity of their contention; for they maintain that pernicious reflex phenomena are invariably observed in a part of the body built purposely to resist such involvement.

On the other hand, a current notion has it that traumatic spinal injury is the sole etiological factor in osteopathy, or, at least, the one of paramount importance. That this opinion has been widespread is shown in many ways, and as a result of the promulgation of this doctrine the therapeutic world has come to look upon osteopathic physicians as "spine specialists," prepared to treat only those conditions which result from trauma. So, too, the profession has focussed its researches solely upon the effects of traumatic injury to the vertebral column, until the public at large has become puzzled to know why osteopathy treats this latter structure in a vast array of diseases, both acute and chronic, when such diseases present no history of traumatic injury either to the main skeletal support or to the body.

In view of these facts, if we are not to discredit ourselves by practice that defeats itself, our profession as a whole must offer some reasonable and tangible explanation *of why structural involvement of the musculo-vertebral tissues is invariably a correlated factor in disease.* Trauma is no doubt a cause in a limited number of cases; and the commanding importance of the spine in the economy of the body is unquestionably a matter of direct etiological significance. However, if the mainstay of the osseous framework is architecturally perfect, as osteopathy has heretofore taught, it is difficult to understand how anything short of severe physical injury can involve the tissues of the bony column. Thus, after careful analysis of the practical and theoretical aspects of osteopathy, we must admit that no scientific explanation of non-traumatic spinal perversions exists. Indeed, in this matter we are faced with a profound physiological problem, the solution of which can be had only through mastering the

details of spinal structure and function. To this end let us inquire if any absolute norm of human spinal construction and configuration really exists, so that we may determine whether or not there is to be found a perfect human spine associated with health.[1]

Established Criteria of Spinal Normality.—First of all let us consider the generally accepted criteria of spinal normality, particularly those pertaining to construction and configuration. As to the curves of the movable column, osteopathy has always taught that each separate region of the spine is a perfect arch, resembling an arch of masonry, and that each vertebra represents a wedge-shaped segment of an arch. To promote the greatest efficiency throughout the arch, this view holds further that the individual segments must be placed equidistantly and their structural development must be bilaterally symmetrical. Some writers have gone so far as to specify the exact flexure which each curve should present. Take for example the dorsal convexity. To determine its normal flexture, these writers measure the length of the dorsal region, which measurement is taken as the radius of a circle. From such a circle is cut a segment of the same length as the dorsal spine. This segment represents the curve which is looked upon as normal for the region in question. In the cervical and lumbar regions the normal curves are plotted in a similar fashion.

Now, medical as well as osteopathic authorities have taught that normal curves of the spine are prerequisite to sound bodily development. The reference handbook of the Medical Sciences, Vol. V., page 377, says: "The column in the erect position presents certain normal curves." Saunders' Medical Hand Atlas, page 121, states: "The vertebral column presents certain normal curves." These "normal curves" are pictured in all standard text-books on anatomy as graceful unbroken flexures, four in number, succeeding each other from the occiput to the tip of the coccyx. As to the concrete construction of the column, medical writers have written little or nothing. A few references are found to anomalous vertebral eminences, e. g., the mid-cervical spines, the vertebra prominens, the lower dorsal and upper lumbar spines. However, these anomalies are looked upon as racial characteristics, not as individual peculiarities. This vague handling of the subject of spinal normality is not limited to writers upon general medicine. On the contrary, the most widely known *medical writers upon the spine* have not been at all times clear and consistent in their definitions of spinal normality. For instance, Dr. Albert Abrams in "Spondylotherapy," 1910, page 39, says: "The median line of the body is obtained by holding a plumb-line behind the patient so that the lower end of the line drops into the groove between the buttocks. In the norm each marked spinous process will lie under the plumb-line." On page 41 of the same book we find the following: "Even in the norm there is a slight lateral convex curve to the right, extending from the 5th dorsal to about the 3rd lumbar vertebra."

To return to the osteopathic criteria of spinal normality, let us view the cuts of page 200 of Dr. Hulett's "Principles of Osteopathy," 1906 revision. On that page are pictured two vertebral columns, one termed "normal" and the other marked "abnormal." There we find portrayed the osteopathic interpretation of bodily structure as related to organic health. In a word, the osteopathist is an idealist and his standards of structural efficiency are purely hypothetical. He speaks of abstract perfection as if it were a condition of structure that is not only attainable, but actually prerequisite to health. He teaches that functional efficiency throughout the body is directly proportionate to the structural integrity of the spine. In a word, the orthodox

[1] Willard: A. O. A. JOURNAL, March, 1910.

osteopathic physician believes that absolute perfection of spinal structure is found in the highest type of physical development.

Specifically, the osteopathic criteria of spinal normality, so far as construction is concerned, are these:

(1) All spinous tips, excepting those where the different regions of the column meet, must be equidistantly placed;

(2) In the transition from one curve to another the change in distance from spine to spine must be gradual, not abrupt, excepting a break which occurs directly at the juncture of the different regions;

(3) All spines must reach posteriorily to the surface line of the flexure;

(4) No spine must project posteriorly beyond this line;

(5) No spine must lie to the right or left of the mid-spinal line;

(6) The transverse processes upon palpation must project posteriorly the same on each side of the mesial plane;

(7) The juncture of the ribs with the vertebrae on the right and left sides of the spine must present the same posterior projection upon palpation.

Thousands of Healthy Spines Examined—It is not the purpose here to give details. The important facts that bear upon the matter in hand include many hundred pages of closely written manuscript. Hence, to conserve space, it is necessary to omit all technical proof and to present many of the conclusions without any comment whatsoever. It is sufficient to state that during the past twelve years, several thousand healthy spines have been under observation. Day laborers, merchants, men and women of leisure, athletes, sailors, soldiers, Africans, American Indians, Iguarroties, etc., have been carefully examined and imprints, tracings, and measurements of their spines accurately recorded. Likewise the configuration of each spine as a whole was studied in relation to the size, shape and weight of the body. Finally, an estimate was made of the mechanical adjustment of the different spines, so as to determine whether or not each spine was built after the plan best suited to serve the needs of the body.

Obvious Spinal Defects.—To make a long story short, every spine examined, whether in the aged or the young, in healthy or unhealthy persons, alike, presented obvious and often marked defects both in construction and configuration. As to the obvious defects found in healthy spines the following are the most conspicuous. It must be borne in mind that all of these defects are not found in every healthy spine, however two or more of them as listed below are invariably found:

(1) Certain spinous tips lie to the right of the mid-spinal line;

(2) Certain spinous tips lie to the left of the mid-spinal line;

(3) Certain spinous tips fail to project posteriorly so as to touch a line drawn from the tip above to the one below;

(4) Certain vertebral spines break the line of contour by projecting backward too far, that is by apparently protruding from the column of spines piled one upon another;

(5) Apparent gaps occur, usually in the dorsal spine. This is caused by spinous tips diverging as they project backward. Indeed this gap often gives the appearance of a spinous tip missing;

(6) Certain spinous tips lie too close together (this condition unless uniform throughout the spine is almost invariably associated with the preceding condition);

(7) The transverse processes upon palpation do not project equally on each side of the column;

(8) Upon palpating the juncture of the ribs with the vertebrae the

topographical outline is not always the same upon each side of the spine.

At this point the student will ask to be told the standards by which we measure a spine that is compatible with good health, for if osteopathy is based upon a diagnosis of conditions of the spine in disease there must be some rational criteria of spinal normality. Thus far we have shown that the established methods of diagnosing spinal perversions are not altogether satisfactory. Let us now approach the matter from a different viewpoint and study minutely the morphology of the spine, so that we may be able scientifically to differentiate between healthy and unhealthy function in man's vertebral column.

The Rational Criteria of Normality in the Vertebral Column and the Relation of Spinal Curves and Contour to Health.

THE TERM HEALTH—Health at best is only a relative condition. When we say a man is in the best of health, the most we can imply is that at the moment, so far as we are able to determine, his organs are unimpaired and his nervous mechanism is undisturbed.[2] This conception of health is a philosophical one, and is not shared by every person. As we all know, a current notion has it that perfect health is attainable, while many look upon a feeling of comfort combined with graceful physical development as perfect health. But, needless to repeat, every true philosopher of the common life knows that the highest attainable degree of either body or health is far from perfect, for a man in the best of health with the best of care will sooner or later fail in the performance of his vital functions. Not even the firmest believer in natural perfections can gainsay this latter statement; hence every thoughtful man must admit that certain of our vital organs are totally unfit to cope, for any great length of time, with the forces and factors encountered in daily combat.

What Is Normal Structure?—Even the term normal structure is a relative one. Many are inclined to believe that normal structure means an absolute rule of structure; but this conception of normal is not accepted by biologists to-day, for no one has been able to find anywhere in Nature an established norm of life. Even in chemistry laws that were once looked upon as absolute and immutable are now held open to constant revision, for it is conclusively shown that matter is surely, though imperceptibly, changing. Evolution precludes the possibility of anything fixed or permanent in the universe.

A recent writer on osteopathy says: "Normal structure is that which is the rule among living things. * * * The rule in all living things is the maintenance of the longest, strongest and most productive life possible to its kind." It may be said in a general way of every species that it has established a rule of structure; however, this standard is only maintained by those of the species that survive in the best physical condition for the longest time, and to say that the rule in all living things is the maintenance of the longest, strongest and most productive life possible to its kind is, in the literal sense, preposterous, for most living creatures in their natural state bring forth offspring far in excess of the number that survive to perpetuate the species. Some parental pairs produce in their lifetime countless numbers of their kind; yet throughout Nature, where man does not interfere, the number of individuals of any species does not, on the whole, increase from year to year.[3]

The terrestrial plan of the continuance of life prior to the advent of man was by natural selection, and to-day all life not influenced by the volition and action of man is still simply the survival of the

[2] Many cases are recorded where persons who always lived apparently in the best of health have suddenly met death, and upon post-mortem examination certain of their organs have been found to be in a far advanced state of structural deterioration.

[3] Dr. David S. Jordan: "Animal Life."

fittest. Man, however, by the exercise of his acquired faculties, knowledge, reason and self-consciousness, has set aside this law of natural selection; in reality, he has risen superior to both heredity and environment. "Man's will becomes a power in Nature. Nature's inexorable discipline of death to those who do not rise to the standard—survival and parenthood alone for those who do—has been from the earliest time more and more definitely resisted by the will of man. *Man is Nature's rebel.* At every step of his progress man has receded further and further from the ancient rule exercised by Nature,[4] (i. e., survival of the fittest).

In the human race, then, not only the fittest but also the unfit survive. It is a matter of everyday observation that the unfit are often as likely to attain to parenthood as the fittest; and it is this condition, unique among the Children of Nature, that is responsible for man's anomalous structure and function from the moment of conception.

We have considered in a general way the terms health and normal structure. So let us, before pointing out the criteria of healthy spinal structure, study minutely the structure and constructure of man's spine.

The Construction and Configuration of a Healthy Human Spine—In man, in consequence partly of the disposition of the articular surfaces of the vertebrae, and largely of the elastic tension of some of the ligaments, the spinal column, as a whole, has several clearly defined curves, being concave in the neck, convex in the back, concave in the lumbar and convex in the sacro-coccygeal region; an arrangement which gives much elasticity to the whole spine, and diminishes jars communicated to the spine, and through it to the head, by locomotion in the erect position.

As already stated, curvatures in the different regions of man's spine vary so greatly in every healthy individual that it is impracticable to term any curve whatsoever a normal curve. In other words, the spinal contour of two healthy men of the same height, weight, age and girth of abdomen, chest and limbs, will often differ widely in corresponding regions. Yet for the diagnostician it is necessary that some standards of formation be recognized and accepted.

If we examine the spine of a foetus, we find that the only curve formed of truly movable vertebrae is the dorsal convexity.[5] Hence, it seems we are justified in concluding that this curve is organic to man as a species, and is provided by nature in order to furnish greater room for his more heavily taxed heart and lungs; for in other vertebrates we do not find such a well marked dorsal convexity; indeed, in many it is entirely wanting. While man's dorsal and sacral curves are well marked at birth, due to the wedge-like configuration of the bodies of the vertebrae in these two regions, his lumbar and cervical curves are not developed at all because the bodies of the cervical and lumbar vertebrae are not of graduated thickness. That is, at birth, each body is practically of uniform thickness throughout; though later in life the bodies of the lumbar vertebrae may show the effect of greater compression dorsally than ventrally and measure less toward the skin of the back than toward the abdomen. So we see that the bodies of the vertebrae themselves are not the prime factors which produce the cervical and lumbar concavities found in every healthy man's spine.

If we look further for the cause of the cervical and lumbar concavities we will find elastic pads between the bodies of all the articulating vertebrae. These fibro-cartilaginous discs are twenty-three in number. Disc number one is placed between the second and third cervical ver-

[4] Lankester: "Kingdom of Man."

[5] The vertebrae of the sacrum and the coccyx forming the sarococcygeal curve, develop, of course, in utero, but soon after birth the cartilagenous matter of which they are formed unites and ossifies.

tebrae and so on down the column in numerical sequence, pad number twenty-three being placed between the fifth lumbar and the sacrum.[6]

So much for the interposition of these semi-elastic cushions in the spine; now let us inquire as to their structure and function. It is a matter of considerable meaning that these interposed discs form almost one-fourth of the total length of the movable column; that they are firmly adherent to the bodies of the adjoining vertebrae; and conform in shape to the bony surfaces which they touch,[7] being oval in the cervical and lumbar region and heart-shaped in the dorsal region. They may be compared in configuration to a double convex lens, and they attain their greatest thickness in the lumbar region and are thinnest in the dorsal region.

Now, as a child begins to walk upright and to hold its head erect, and as the weight of the body bends the lumbar region forward, and the weight of the head bends the cervical region forward, the intervertebral discs are compressed on their outer side toward the skin of the back. So we see it is the graduated thickness of the intervertebral discs in the cervical and lumbar regions that determines the concavities of man's spine, and as the degree of graduation of these discs depends upon an infinite variety of conditions and circumstances, the cervical and lumbar concavities may or may not be well marked in a healthy spine.

To summarize: The dorsal convexity is always present in every healthy spine and more or less fixed in form; it is the only curve we can predicate, because it is now distinctly human and the product of possibly eons of evolution. This curve is purposive, i. e., it serves the double purpose of being shaped so as to protect the heart and lungs and also to break shocks to the spine and to the body in walking upright. To anyone with a knowledge of the morphology of the spine, it is at once apparent that this curve is *a priori*. The other curves in the movable column are consequential; that is, individual developments, as when the individual began walking, the structure of his body, whether he is tall or short, heavy or light, etc. Consequently the only curve in the movable column that can be looked upon as a criterion of health is the dorsal convexity; and even of the dorsal curve the most that can be asked is this: "Is its curvature well marked and definite?"[8]

(*Continued on page 35*)

[6] The atlas consists only of a bony ring without a solid extension as in other vertebrae. Consequently the first cervical has no elastic pads. This anomalous construction of the first cervical is compensated for by the odontoid process of the axis which projects vertically through a special compartment in the atlas as a pivot for rotary movement of the head.

[7] In the cervical region where the lower margin of the superimposed vertebra is overlapped on each side by the one which bears it, the disc does not extend to the extreme lateral margin.—*Cunningham.*

[8] It is true that every healthy spine has a marked concavity in its lower part, more pronounced in women than in men; but contrary to a prevalent notion among students, and even physicians, this concavity is not due to a marked curving of the lumbar region, for the lumbar region, as we view it in the living subject, bends forward but slightly in a healthy man. In other words, the lumbar curve is more apparent than real; what really produces this concavity which the layman terms the "small of the back" or "the hollow of the back," is the sacrum arching forward below and the lower dorsal vertebrae sloping forward above the lumbar region, the lumbar region forming merely the floor of the cavity. Further, it is true that the spines of the cervical vertebrae palpated through the skin and muscles of the back of the neck present a marked concavity; but this concavity is no criterion of the adjustment of the cervical vertebrae, for it is due solely to the fact that the spine of the second vertebra is prominent in the upper part of the back of the neck, and the spines of the sixth and seventh vertebrae are prominent in the lower part, while the spines of the third and fourth and fifth vertebrae are very short, in fact, often palpated with difficulty. Still further, it is a point of practical importance to note that while the concavity of the cervical spines is more pronounced than the concavity of the lumbar spines, yet the curve of the bodies of the cervical vertebrae is less marked than the curve of the lumbar bodies.

A PERMANENT PLAN FOR BUILDING UP THE ENDOWMENT FUND

C. M. TURNER HULETT, D. O.,
Chairman Board of Trustees
Cleveland, Ohio.

Historical.—Six years ago the profession, seizing upon Dr. Guy E. Loudon's suggestion, and approving the recommendation of the Committee on Education, started the endowment movement. Everybody was enthusiastic. The A. O. A. became sponsor for it, but the plans adopted did not limit it to that organization. These plans were made as broad as the profession and everyone entitled to write D. O. after his name became an equal beneficiary of the Institute. Every member of the profession without distinction has an equal interest with every other member in the success of the enterprise and its work.

It was natural to expect under such circumstances that every osteopath, in addition to his self-interest, would feel in honor bound to do what he could to put the Institute into working order as soon as possible. Twenty-seven people were asked by the profession to act as a board of trustees with general supervision; the Council appointed from the Board has labored to provide as much research as possible with the limited resources; the Finance Committee appointed from the Board has done what it could to increase those resources, believing all the time that the profession would keep up its end. These have all given of their time and energy, expecting no compensation other than a triumphant osteopathy, in accomplishing which the work and influence of the Institute would be a large factor.

Incomplete Results.—After six years, less than five hundred of the five thousand have subscribed to the fund, on the five-year plan, and some of these have so lightly regarded their obligation as to get no further than subscribing; the Institute has not seen the color of their money. The Finance Committee began to wonder if it failed in aggressiveness, and it cast about for some more direct method of proceeding. Two classes of people had not been reached, and something was necessary to cure that defect in present plans.

The Dollar-a-Month-Minimum Plan.—Taking subscriptions at meetings reached only a small minority of the profession, and of that minority only those who happened to be ready to subscribe at the particular time; the result being that many were missed who would contribute if they could be reached in such a way and time as to meet their circumstances. The dollar-a-month-minimum Plan was suggested to meet this situation. This plan took at once with a good portion of the profession. Approximately a thousand began their contributions at once, or would begin soon. A thousand more are favorable and hope to be able to do their share at some time in the future. In addition are the five-year subscribers, and the Illinois profession whose contributions go to the building fund.

The Sight-Draft.—The rest of the five thousand were so indifferent to their own interests in the endowment movement that they ignored it entirely, and were even ignorant of what it would do for them. The committee determined to get these people's attention, and get some expression from them. Past experience showed the futility of any spineless appeal to them. They required a jolt. The sight draft feature supplied the necessary backbone to the proposition, and when that proposition reached a member he knew something had hit him, and he had to reply even if only by a grunt. These vigorous measures were necessary to get these members' attention. They needed waking up. It was simply putting the matter up to them in such a way as could not be evaded. The answer had to be yes or no. Every mem-

ber had full opportunity to decide for answer between a postcard, a check, or a draft. Three separate notices, extending over a period of ninety days, were sent to every member, and a postcard in reply was all that was necessary to prevent the sight draft coming.

Objections.—Now, fellow osteopaths, some of you wondered what the committee meant and wrote for information; some "declined with thanks"; some were "not interested"; some were offended at the "audacity," "presumption," and "impertinence" of the committee; and finally some who ignored the three notices and made no reply of any kind were astonished to find that the committee meant what it said about sending drafts.

The chief point of objection was the "compulsion" involved, and the objection arose usually from careless reading of the proposition. There was no compulsion as to payment. You were free to send a check or a postcard. If reading the circular failed to arouse you, and the draft came, you had perfect freedom to pay it or to send it back. The Trustees had been doing the best they could with this business of yours that you had put into their hands, but it was due them that you pay some attention to it as well. It is your affair, your institution, your "dividends" from the institution, and whether voluntarily or involuntarily, consciously or unconsciously, you are taking and using, and will continue to take and use, those "dividends" as long as you are an osteopath.

The Record.—From the checks, letters or cards, and drafts, the Finance Committee now has the individual record of everyone of over 5,000 osteopaths on this matter. It is an interesting record. It shows two things clearly. One, that with a large part of the profession the only question is, how large can we make the endowment? The other, that with many in the profession there is a lack of the sense of proprietorship in the endowment, and a need of education in the fundamentals underlying the movement. By this record also, each one aligns himself in one of two classes. He is either a supporter (moral or financial) of the endowment, or he is profiting from the endowment at the expense of his fellows. There is no neutral ground as some seem to think.

The Committee Learns.—This record has given the committee an important pointer. The committee had proceeded on the assumption that the members of the profession all had the same conception of the endowment movement that the committee had. This was the committee's mistake. It did not properly appreciate the amount of educative work still necessary in the profession. Now that attention has been aroused, the members are not going to be allowed to forget. The committee will go right on in the course laid out, but will take care to throw into the spotlight the true relation of the members of the profession to this work. This article emphasizes the fundamental fact of proprietorship, and shows the error of those who assumed that the movement did not concern them. These misunderstandings will all be smoothed out and many who at first felt some resentment at the draft proposition, will soon be among the strongest boosters. It is inconceivable that any right-minded person will willingly see a movement going on which is to redound to his personal benefit many times over what it will cost him, and that he will accept joint title to what that movement produces, and yet refuse to do what he can and let his fellows do all the work and stand all the expense.

Think Twice—Now, Doctor, before passing snap judgment on this statement of the matter, read the following description of the possible work of the Institute, and then go back and read this over again in this light: that these words have been carefully and deliber-

ately chosen and are intended to mean exactly what they say; that they are not an argument presenting one side of a case, but are intended to present a faithful, accurate, photographic word-picture of the exact situation as it really exists.

The Permanent Plan.—The dollar-a-month plan was so well received that the Finance Committee will make it the regular basis of contributing by the profession, to the endowment fund. The standard set by this plan is **$1.00 a month from every member of the profession,** and more from those who are able to pay more, to be paid in two installments a year, on May 1st and December 1st. Notices will be sent out to all the profession reminding them of each coming payment date. This will keep all the profession in touch twice a year with the work, provide for their falling in line at any time if not ready at the first presentation, renewing and stimulating interest, keeping them informed of progress, and tending to call out suggestions and to invite co-operation, and finally it will cultivate the necessary sense of proprietorship in the Institute on the part of every osteopath.

The ultimate beneficiary of the work of the Institute is the practitioner of osteopathy without regard to any other distinction. The Institute is no respecter of persons, and its influence is as wide as the profession. Every member will profit in many ways from the Institute, whether he is able to contribute financially or not.

There may be differing ideas as to the meaning to be given the word "able" in this connection. Several contributors have suggested that anyone who could pay office rent could pay $1.00 a month to the endowment fund. This is much nearer the right view than the opposite extreme of regarding the Institute as a "charity." But, however, each one may settle this point for himself, all contributions should be planned for, so that when pay day comes the remittance can be made promptly.

The standard will be at the rate of $1.00 a month. This is the minimum. Those who are able to do so should pay more, according to their circumstances.

May 1st and December 1st will be continued as dates of payment. Thirty days before these dates a reminder will be mailed to every member of the profession.

A Courtesy.—The drafts had to be sent out through a national bank, and the Treasurer of the Institute kindly consented to send them out through the Citizens' National Bank of Kirksville, Mo., of which he is President. This was entirely a matter of accommodation to the Institute on the part of the directors of this bank.

Draft Method Not Satisfactory.—While many prefer the draft method of making payment, owing to its convenience, the experience of the Committee with it this time was so unsatisfactory that it will not be continued. Many banks required us to forward a 25c fee for handling the draft whether paid or not, and a number retained 50% of the amount collected as their fee, so that of a member's $6.00 only $3.00 reached the fund. The Committee is compelled by this state of affairs to ask everyone to send in his contribution himself, in the future, by check or money order. Drafts will not be used in the future.

OUR RELATION TO THE INSTITUTE AND ITS PLACE IN OSTEOPATHY

A Co-operative Enterprise. — Co-operation is the universal method of social advance. In civic affairs co-operation is assured by law. In social organizations the highest efficiency results from a mutual "give and take" policy between individuals. For instance, how much osteopathic legislation would we now have if there had been no co-operation among members of the profession in getting it. Co-

operation is the essential content of that solidarity which distinguishes a united, efficient organization from a mob.

The A. T. Still Research Institute is a co-operative enterprise of the osteopathic profession. It has no connection with any college, insurance company, or other business. It is not a stock company. It was named after Dr. A. T. Still as a mark of honor to him, but he has no other connection with it more than any other osteopath. It is separate and distinct from all other osteopathic enterprises, except being under the control and supervision of the A. O. A. Its beneficence will be drawn from the whole of the science and practise of osteopathy and will go out to every osteopath on earth, not only as a general educative influence, which will be very great, but in the form of tangible physical helps, books, literature, lectures, appliances, and many forms of co-operative support of practising osteopaths.

Every Osteopath.—The entire osteopathic profession does of necessity cooperate in the endowment movement on the side of owning and profiting by it. For the endowment belongs to the entire profession. The A. O. A. with all its work for the profession so vitally necessary to the welfare of osteopathy, yet must make a distinction in its returns, in that the larger part of the money it uses goes back in the form of the Journal to those who paid the money, and not to others. On the other hand every osteopath will be an owner in equal share of the undivided endowment fund. Every dollar that goes into the fund makes each osteopath a little richer, the contributor no whit more than the non-contributor.

The relation of the profession to the Institute is like that of the citizens of a state to the state university. The state is justified in compelling contributions from every citizen, on the basis of equal sharing of all in the general benefits of the university. In a social organization contributions are of necessity voluntary, but the moral obligation is identical with that which makes it right for the state to collect taxes for support of the university, while osteopathy's great need and great opportunity make the obligation proportionately greater upon the profession.

Not a Charity.—It is a grave mistake to think of the endowment as a "charity" or even as a desirable luxury. It is a grim, vital, immediate, necessity. Let's not deceive ourselves. The world that we have to do with as a profession, is passing us in the race. We are falling behind, in the sense that the public will conclude that as we do not have them, these things have no place in osteopathy. This may not be very apparent yet, but as time goes on it will become increasingly and heart-breakingly so. The remedy is in our own hands. Not at some indefinite time in the future, but now. That remedy is to get out of this paralyzing lethargy, take hold of this problem sanely, firmly, and unitedly, and push it to a complete solution.

The Credit List.—It is the business of every osteopath not only because it is to be a direct personal benefit to each one, or because it is a matter of equity between us as individual members of the profession, but because it is vital to the osteopathic profession to show that it is big enough to measure up to the larger requirements which it must meet, and can meet adequately only by such an institution, or retire beaten from the field, and acknowledge that the claims we have been making that osteopathy was a science and a complete system, were buncombe and fraud. Doctor, it is up to you. Are you for or against a great future for osteopathy? Your contribution means your vote for it. Your refusal to contribute as you are able records your vote against it. The publication from time to time, of the names of the con-

tributors to the endowment fund, will constitute a record of the attitude of each osteopath in the profession who is able to pay, as to whether he is helping his profession forward or not. The absence of your name puts you in a bad light. You cannot afford to have it appear that while appropriating and enjoying your share of the advantages of the Institute, you are not doing your share in its support. You do not want to enroll yourself as a hanger-on, as a pensioner on your profession.

It Is Our Move.—The small amount the profession contributes is only the working fund, to enable us to properly present our case to get the large endowment from outsiders. This larger fund will belong to the profession, to every member alike. Not in the sense of being able to realize on the principal, but emphatically in the sense of receiving and using the "dividends," the advantages and benefits of the Institute. This does not depend upon the dictum of the Trustees, the A. O. A., the profession, or any part of it. It depends upon and is fixed by the state laws under which the Institute must operate, and its operations are regulated and controlled by these laws.

Therefore, the conclusion. Every practising osteopath receives equally the benefits. For these benefits he gives something or he gives nothing. He is either doing his share in building up the Institute, or he is climbing on the backs of his fellow osteopaths and compelling them to carry him along. Every osteopath is a partner, and he will remain a partner as long as he is an osteopath.

THE INSTITUTE

What It May Be.—The Research Institute is so planned that it can be developed into the greatest single enterprise in the whole range of osteopathic activities, and do more for osteopathy than any other agency in the profession. Its charter says its object is to "promote the interests and welfare of the osteopathic profession" and also to do "anything which may in the judgment of the Trustees conduce to the welfare of the osteopathic profession." The amount of help it may render will be measured only by the size of the endowment. It has potentialities for good to osteopathy and to osteopaths, more far-reaching than anything in the history of osteopathy since its discovery and establishment by Dr. A. T. Still, or anything that is probable in its history in the future. Of course you want to have your share in it, Doctor. It would be a discredit and a source of regret and chagrin in the future if your name is not among those who made it possible.

The endowment itself is the backbone of the whole thing. Every dollar paid into it is to be kept forever to be safely invested and only the interest to be used. Plans can be made for any accomplishment that may be desirable for as many years ahead as may be necessary, in the full assurance that the stated annual income will always be there ready to take care of the work. Everything else rests upon and is assured by this characteristic of stability.

Not only the intent and purpose of the Institute, but the law under which it operates as well, excludes any idea of profit from its operation, so its output will go out to the profession at less than cost. That is, the income of the endowment will be expended each year never to return to the Institute, its product whatever it may be becoming the possession of the profession. If the endowment produced an income of $10,000 a year, in ten years osteopaths would be enriched by the accumulated results of the expenditure of $100,000 in research work, each year adding its quota of the harvest of science.

What It May Do.—An enumeration of some of the things the Institute may do for us will show the wide range of its possibilities:

1. **The research work** comes first.

provided for in laboratories fitted with everything necessary for following any line of investigation to its final conclusion, as well as all collateral lines growing out of the primary problem. For this we would need to train special workers, taking young men and women who showed adaptability and sending them to the best laboratories in the world for preparation for this work.

2. **There should be a hospital,** the equal of any in existence, provided with everything in the way of ordinary facilities, and in addition so arranged and fitted as to permit of clinical researches in the problems of disease, by methods of laboratory exactness.

3. **A post-graduate department** would enable any osteopath to take up any line of original investigation for himself that he may have found in his practise. It would include also special courses in laboratory work, surgery, hospital and bedside practice, special anatomy and pathology, osteopathic technique and practice; anything needed by osteopaths not covered by the regular college courses, and for which osteopaths now sometimes think it necessary to go to medical colleges.

4. **A nurses' department** would be necessary in connection with the hospital, in which osteopathic nurses would be trained.

5. **A publishing department** would publish journals, bulletins and monographs on everything in the work of the Institute that might be of interest to the profession. It could take the manuscript of osteopathic authors and publish it for the benefit of the profession. It could employ authors and editors to prepare texts on any subjects needed by the profession. It could publish any kind of literature the profession might need. A bureau of publicity in this department could get osteopathic articles in the public magazines and papers, publish popular literature, and devise and use any legitimate means by which the public might be informed of what osteopathy is doing. Possibly the endowment could take over some of the present publishing expense of the A. O. A., thereby releasing its funds for legislative and similar work.

6. **A library** which should include all the published literature needed for reference by research workers and post-graduate students. In this connection it could be provided that any osteopath might write to the library and receive a list of the publications on any subject on which he might need light at that time. In connection with the post-graduate department he might be given suggestions that would help him out in a bad case.

7. **A bureau of statistics** would keep on file and up to date, everything going on in osteopathy in the way of statistical information, directory of osteopaths, of societies, information about colleges, insurance company actions on osteopathic practitioners, the legal status of osteopathy in court cases and rulings, legislation, and other information of like nature that might be of interest to the profession.

8. **An expert could be delegated** to study public dispensary work by going to the places where osteopaths have tried them, learning how they do it, what to do, and what to avoid, the possible results of such work; and then, formulating all this information, help other osteopaths to start dispensaries, and keeping them all posted on anything new in that line thus promote this method of letting the world know that osteopathy is on earth.

9. **An expert in public welfare work** could render signal service to osteopathy. One woman osteopath comes to mind just now who has taken courses in the Chicago and New York schools of philanthropy, has spent two years with Jane Addams in Hull House, and had other experience in this line. Such an one could help to interest osteopaths

and to get osteopathy represented in these movements which are so much in the public mind to-day, and in which osteopathy must take its part. The program of the National Association of Charities and Corrections at its last annual meeting, showed a good sprinkling of medical men. Other similar organizations show the same thing. The osteopathic profession must be alive to these things.

10. **Stations for special research** could be established by appointing any osteopath situated and qualified to pursue some special investigation in connection with his practice, or in one of the colleges; or send some one to study special diseases, tropical diseases, or epidemics, in any part of the world.

11. **The Institute could co-operate with the colleges,** and even help them in many ways, for it would be as much its province to aid the colleges in their work, as to aid individual osteopaths.

12. **The osteopathic associations, science circles,** and all organizations could be connected up with the Institute in many ways, to conduce to mutual benefit.

13. **The endowment could even strike a blow** for osteopathy on occasion. For instance, in the case of one osteopath who has been maliciously persecuted for two years or so. Indicted five times, three of the cases so flimsy they were thrown out of court, two tried, resulting in acquittal both times. Threatened with indictment for practising surgery because he cut the cord in an obstetrical case, and finally threatened with indictment for murder when the woman died later from unavoidable causes. It would be a lot of satisfaction to send a Burns' detective out there, find out what is behind that persecution, who is furnishing all the money for it, and if possible send some of the "gang" to the penitentiary.

A Question of Growth—You say this is a big thing. Well, how big is osteopathy? Is there anything on earth too good for it? Then if not, we can aim for just this thing. We can begin small. An old dwelling house, with one young man in it who will be business manager, director of laboratories, chief and staff of the hospital, faculty of the post-graduate department, correspondent, general factotum and janitor in one, may be the beginning. There will be plenty of room to grow. The Rockefeller Institute, the crack institution of the medical profession, began just as our Institute, by parcelling out small sums to workers over the country. After a few years they bought a small, old building and used it a while, and it was ten years from their beginning before they got their present plant.

Share and Share Alike—When everything is explained and understood, and the need of the Institute and what it is to do is no longer a question some osteopaths will still be outside the list of its supporters, as for instance:

Those who are just starting in practice.

Those who have had reverses, illness or other setbacks.

Those who are indifferent to progress.

Those who are constitutionally willing to profit at others' expense.

The rest of the profession can go right on (at a minimum of $1.00 a month until outside contributions make this no longer necessary) with the establishing and operating of the Institute, rejoicing in the fact that these people are sharing equally in its benefits and glad to carry them along until they are out of the woods, or are converted from the error of their ways.

The Local Limit—The question will arise, what is the objective point? How long are we to keep this up? And its answer can only be approximate. A line may be drawn somewhat arbitrarily like this: The actual necessities of osteopathy to enable it to hold its own and not lose ground, could be provided

by an endowment of a million dollars. Therefore we should not think of relaxing our efforts, or ceasing our contributions until that amount is reached. What ever outside help we may get, will shorten the time, and lessen the amount we must contribute, but we should keep at it until the total endowment is a million. That will keep us even with the world.

The Ultimate Limit—But beyond that there should be a policy of enlarging and expanding the scope and influence of osteopathy, and an aggressive pushing for a larger place for it in the world of science, and of practice. For this an endowment of several million would be necessary, for which we will have to depend upon the generosity of those outside the profession.

A Suggestion—Do you know anyone who might contribute:

In General, to—

The Institute as a whole; Its Research Work; Its Hospital Work; Its Post-Graduate Work; Its Publishing Work.

In Particular, to—

A Special Subject of Research; A Laboratory for Special Workers; A Laboratory for Post-Graduates; A Research Fellowship; A Lectureship; A Library; A Hospital; A General Ward; A Woman's Ward; A Children's Ward; An Obstetrical Ward; A Surgical Ward; A Bed in Any Ward; An Osteopathic Clinic; A Surgical Clinic; An Operating Room; A Nurses' Department; An Editorial Chair; A Publishing Department; A Publicity Department.

If so, can you interest that person in the work. Present the matter as occasion may offer. If circumstances develop and you want assistance, arrange for an appointment for a representative of the Institute to help you in presenting the details more fully

The Long Vision—We can do what we will to do. We must achieve the smaller fund, to prevent us "coming on the county." We will achieve the larger fund, and fulfil the great mission which osteopathy has for the betterment of conditions in the world of suffering. The wealth of scientific truth disclosed in the discovery of osteopathy is adequate to the clearing of the bogs and swamps of empiricism in the field of the healing arts. The resulting debt of potential accomplishment, to be actualized by its practicians, that osteopathy thus owes to the world is our great opportunity. The universal desire in human nature to be remembered for something worthy may find satisfaction in assuring the success of this enterprise, the greatest of the agencies by which osteopathy may be enabled to bestow in full measure its wealth of blessing upon humanity.

Now, Doctor, do you have any interest in this enterprise? Do you think this is anything which concerns you? Do you have to "belong," or "subscribe" to owe something to get it? You cannot be so apart and aloof that there is no obligation on you toward it, unless you are outside the osteopathic profession.

EVERY MAN'S SPINE DEFORMED

(*Continued from page 27*)

As to the curve of the immovable part of the column, namely the sacro-coccygeal region, little need be said. The sacrum articulates above with the fifth lumbar, below with the coccyx and laterally, on either side, with the right and left innominate, or hip bones respectively. The first named articulation is freely movable, the other three only partially so.

Since all four joints are capable of some movement, the angle which the sacro-coccygeal curve makes with the lumbar depends somewhat upon the adjustment of the articulating surfaces; and this adjustment, in health, depends upon a variety of conditions, as the shape of the bones, the carriage of the body, the height of the heels of the shoes, etc. It might be added that, even in health, the coccyx instead of articulating so as to make a curve with the sacrum, often ar-

ticulates so that with sacrum it forms an angle more or less obtuse. Thus, we see that the curve of the immovable column, *per se,* is no criterion of the health of the spine or of the body. Indeed, as noted above, the spinal column has but one curvature that can be looked upon as a reliable guide in diagnosis, viz., the dorsal convexity, and the most that can be said of the latter flexure is this: Its curve must be well marked and definite.

CONCLUSION

Concerning the curves of a healthy spine, so greatly do they vary in every healthy individual that it is impracticable to term any curve a normal curve; in other words the spinal contour of two healthy men of the same weight, age, height and girth of abdomen, chest and limb, often differs widely in corresponding regions. Incomplete, clumsy and inadequate curves are often found in one or more regions of the spine. Further, a lateral curvature is usually found in the dorsal region. In brief, the general appearance of the curves of a healthy spine conveys the idea of inefficiency and asymmetry, hence the following conclusion is reached, contrary though it is to generally accepted beliefs and authoritative statements among well known writers:

The formation of man's spinal curves is governed by no demonstrable law excepting the law of gravitation. Externally, the spine is shaped by the individual body which it supports. As no two bodies are alike in their adjustment within themselves and with their environment it follows that, so far as configuration of external form and figure is concerned there is no such thing as the normal human spine. In the evolution of man the norm of human spinal structure has not been reached—although from extended observations it seems that in all vertebrates, except man, the norm of spinal structure in a given species exists. (More will be said presently about spines of quadrupeds.)

We have thus far shown that obvious structural inadequacy is not inimical to health, unless there are found in the spine evidences of disease other than the deformity itself. So it is necessary at once to learn to differentiate between a spinal defection inimical to health and one compatible with health.

Spinal Defects Inimical to Health, i. e., Actual Perversions on "Lesions."

It is suggested that we term a spine unhealthy when it presents a pathological condition in any of its constituent parts. The pathological conditions most commonly found, in their order of frequency, by osteopaths who specialize upon this aspect of clinical study are: (1) Muscular perversion, i. e., congestion or contraction, particularly of the third and fourth layer; (2) Deep-seated exudative deposits, the result of chronic hyperaemia of spinal muscles; (3) Deep-seated overgrowth of the connective tissue with subsequent contraction, interfering with motion of the spinal joints; (4) Thickened spinal ligaments, restricting joint function; (5) Articulating surfaces fixed by muscular contraction or overgrowth of tissue, i. e., two articulating surfaces held in position either of normal approximation or of flexion, extension, or rotation, partial or extreme; (6) weakening of ligaments; (7) wasting of muscles; (8) altered dimensions of intervertebral discs, causing, or the results of, spinal deformity; (9) caries of vertebrae; (10) ankylosis between vertebrae; (11) fracture of vertebrae; (12) partial or complete vertebral dislocation, meaning that the articulating surfaces of two adjoining vertebrae are torn apart and remain disjointed. This twelfth condition is a grave one, and, therefore, it is fortunate for humanity that the vertebrae are very rarely dislocated.

Local Symptoms and Signs of Spinal Perversion.—In the study of local symptoms of spinal perversion, it is well to understand from the outset that absence of pain or discomfort in the spine does not signify absence of spinal involvement. On the contrary, in many cases the patient complains of no discomfort whatever in the spine or in tissues adjacent to the spine. Of course, we do find in many patients severe spinal pain or ache associated with only slight change in the spine itself; but, as just stated, this

is by no means always the case. Let us now proceed to study these conditions as we find them.

ROUTINE SPINAL EXAMINATION

Patient Sitting.—In examining the upper cervical region, it must be borne in mind that the transverse processes of the vertebrae involved are not always bilaterally symmetrical in their development. Deep pressure between the spinous and the transverse processes, when articular lesion exists, (1) usually elicits soreness or "stiffness," as the patient often puts it; sometimes acute pain; (2) the examining fingers meet with tissues that are non-resilient; (3) deeply situated, irregularly outlined masses that feel denser in consistency than the surrounding tissues, are often found near the articular processes; (4) the consistency or density is not uniform as determined by unequal resistance to the palpating finger; (5) certain muscle fibres feel taut and, when the examining fingers are slipped over them stand out tense and ridge-like from adjacent tissues. The examiner should not make any sudden, severe thrust, for such a movement not only hurts and frightens the patient, but also causes even healthy muscles to thicken and tighten and feel abnormal. Upon palpating the anterior muscles and tissues, soreness, congestion, muscular contraction and lymphatic glandular enlargement are found.

These findings are verified by bringing into activity the joints and muscles involved. First have the patient move the head so as to throw into play the different upper cervical muscles and upper cervical articulation, e.g., have the patient bend the head forward, backward, antero-laterally, right and left, and postero-laterally right and left; then have him rotate the head to the right and to the left, first with the chin elevated, second with it tilted normally, and third, with it depressed. Finally carry the head, face directed straight-forward, to the right and to the left. Throughout the movement the shoulders should be in the position of normal repose. The result of these movements when pathologically involved articulations or muscles are called into function, is this: (1) Movements are restricted or often prevented; (2) Efforts at movement cause pain, sensation of drawing in the neck, and often shooting pains in the head, eyes, etc.; then again pain may be absent; (3) Palpation of the involved tissues or joints at the time of movement or attempted movement, demonstrates diminished or lost function.

To verify these findings, the operator should, with the patient passive, move the patient's head in the manner just described. It is well to remember, that when considerable discomfort results or great resistance is encountered in the tissues upon attempt at movement, forced movement, either volutary or involuntary, should not be made.

Patient Lying Supine.—In this position, deep seated deposits, when they occur, are more easily delimited, and the nature and location of the lesion more accurately determined; also the involvement of the anterior structures is more readily palpated. The symptoms elicited upon pressure and movement when perversion occurs, are much the same as those found with the patient sitting.

Patient Lying Prone With Head Extended Beyond Edge of Table—One hand of the operator supports the patient's forehead or chin, lowering and raising the head; the thumb or fingers of the other hand presses deeply in the suboccipital region. Thus, soreness, tenderness, thickening of tissues, and restricted movement will be demonstrated if upper cervical is involved.

In the dorsal and lumbar regions the spine is examined with the patient standing, sitting, lying supine, lying prone, and lying right lateral and left lateral. Joint function is tested and the softer tissues are palpated; and if lesion exists the symptoms and signs are on the whole much the same as those found in the cervical region.

DEFINITION OF HEALTHY OR NORMAL SPINE

We may best sum up the matter presented in this chapter by defining in the following terms a normal or healthy spine:

A spine may be looked upon as compatible with good health, no matter what defects its configuration presents to the examiner, if the following criteria obtain: (1) Vertebrae themselves sound, i. e., not diseased through caries or traumatic injury; (2) Interverbral discs adequate in dimensions and healthy in consistency, as determined by absence of *fixed* curvature; (3) Connecting and supporting ligaments intact and of good tonicity, as determined by absence of pain, tenderness, tenseness, irregular thickening of fibres, flabbiness, atonicity and swollen or congested areas; and (5) Articulating surfaces are exactly adjusted and adequately lubricated, that is, the spine is in a state of serviceability that permits of all naturally intended movements without undue restriction from articulating ligaments.

So much for the column in its anatomical aspect. We are next to consider the cause of its universal abnormality in morphological development.

(*Concluded in October Number*)

The Journal of The American Osteopathic Association

Published by the American Osteopathic Association

247 Fifth Ave., New York N. Y.

Subscription Price, Five Dollars Per Annum, in Advance

COMMITTEE ON PUBLICATION:

D. Webb Granberry, Chairman, Orange, N. J. | J. R. McDougall, Chicago. | Roberta Miner-Ford, Seattle

H. L. CHILES, Editor

Editor's Mail Address, 462 Main Street, Orange. N. J.

ADVERTISING REPRESENTATIVES

A. H. Greener, 140 Nassau Street, New York

John A. Tenney, 30 North Dearborn Street, Chicago

Editorials

A BUILDING FOR THE INSTITUTE

The announcement at Detroit of a purchase of property in Chicago for the Research Institute attracted much attention from those in attendance. It marked the "end of the beginning" of the endowment movement. The Institute had been a prospect. It was now becoming an actuality. With this step accomplished and the Institute in physical existence it would thereafter be a matter of its development according to the professions needs and desires.

This phase of the movement began in a suggestion that the osteopathic profession in Illinois should provide a site and building. They took the matter up at once. A general committee was appointed, with sub-committees of Finance, Real Estate, and Building and Equipment. The state was divided into districts and a district chairman was appointed, these district chairmen constituting the Finance Committee. The profession throughout the state responded enthusiastically and the campaign is progressing to a successful issue. The real estate committee has been investigating properties and a few days before the Detroit meeting located a property more suitable than any seen previously, and for sale on reasonable terms. Several of the trustees were summoned to inspect it, together with a number of local friends, and there was not a dissenting voice as to its suitability.

Drs. Fryette and Proctor, reporting for their general committee to the trustees in Detroit, offered on the part of the Illinois profession, to buy and pay for, remodel, and equip this building, and turn it over to the Institute, the only condition being that the trustees put one or more persons in it as soon as ready, to carry on regular research work. The trustees decided unanimously to accept the tender, conditioned only that a city permit, if required, should be obtained for the use of the building for Institute purposes.

The property is part of an estate, so that the details of transfer require more time than would otherwise be required, and the purchase is not fully consumated at this writing; but there seems to be nothing to prevent a final closing of the deal.

However, whether it be this particlar property or some other, the important fact remains that the Illinois profession is

setting us a splendid example. It will buy property suitable for the Institute and turn it over ready for business. Its cost will be credited to them as that much addition to the endowment fund. The systematic and business-like way in which they have gone at this makes it practically sure that the Institute will open for actual business this coming winter.

It surely behooves the rest of the profession to put forth every effort to show equal enterprise in bringing the interest-bearing fund up to a point where it will support effectively the work that this building will make possible. The present one-dollar-a-month minimum plan will do it if the profession will but measure up to its responsibilities.

C. M. Turner Hulett, D. O.,
Cleveland, Ohio. *Chairman.*

SOME PERTINENT QUERIES

Readers of this article, especially if you are an osteopathic physician, are you interested in The A. T. Still Research Institute? Have you ever felt, do you ever feel, that there are problems about the care of the sick on which you need light? Have you ever felt that there are unsolved problems in the science of osteopathy? Have you ever longed for their solution? Have you ever personally felt the need of their solution? Would you love to be able to say to the inquiring, and the doubting mind, this is what osteopathy is and this is what I can do with osteopathy, and here are the indisputable facts gathered from the bedside, and from the field of scientific research to prove every postulate and every statement I have made?

Have you ever sat by the bedside of a patient, and then in the awful presence of death realized your weakness and your inability to stay its fearful blow? Have you ever wondered what Nature holds in her wonderful laboratory just beyond the horizon of the known facts of human life, of all life? Do these problems, these questions, hold any interest for you? If they are of interest to you, are you aware that the humble purpose of the A. T. Still Research Institute is to undertake their solution? And are you further aware that this Institute, the gift of the osteopathic profession, is dedicated to that cause?

If you are interested in them and in this Institute, *how much* are you interested? How deep a hold has this interest taken on you? Is it a virile, active, interest or simply a passive interest? One of idle curiosity? One of the let-the-other-fellow-do-it kind?

Before you retire for the night, won't you do yourself the favor of running through your file of this Journal and look on pages 53, 54 and 55 of the September issue of 1908, and page 138 of the November issue of the same year, and see if your find your name in print there; and if so, the figures opposite it? Having done that, will you not do yourself a greater favor by looking on pages 1252, 1253 and 1254 of the last July issue of this magazine and see if your name is printed there and the figures accompanying it? Whether you find your name or not, it will prove interesting reading.

History is being made, and each of us is *making* his part of it. That part may be the actual doing of the research work, or it may be the building up of the endowment fund. If your part is the latter, *remember it is only the money that is paid in and invested, that is producing an income,* and that it is the size of the income that determines the amount of work that the Institute can do.

You will recall four years ago how we all, with considerable pride and with somewhat inflated chests, told our friends

and patients that the osteopathic profession had enthusiastically subscribed about $75,000.00 as the beginning of an endowment fund for a Research Institute. You, whose names appeared as subscribers, were proud then of the part you had taken in that movement. How do you feel today? Are you as proud of the part you have performed during the past four years as you were with what you did then? That is another way of asking, have you made all the payments of your subscription as they came due? You recall you were given the privilege of paying it all down, or paying it in five instalments. The final payments are due next December. Those who paid their subscriptions in 1908 have the proved satisfaction of knowing that they have participated in producing four annual incomes for the use of the Institute. Do you question whether they feel as proud of what they have accomplished as they did of their subscriptions four years ago, when they saw their names printed in the list of subscribers?

It is exceedingly unfortunate that so many have waited until the maturity (December next) of the final instalments before paying their subscriptions. They have curtailed the income, i. e., the potential capacity, of the Institute by just that much. This is particularly felt just now, when we are on the eve of being presented a home by members of the profession of Illinois. When that is accompushed, the Institute must begin active work on its own account. This is a condition of the gift. It will require some money to start the work.

Now, the Council, the Committee of the Board of Trustees charged with the supervision of the Institute and the expenditure of its income, can spend only its income, and the Council's activities are limited to that amount. We are, therefore, facing a condition fraught with considerable embarrassment, a condition that should touch the professional pride of every osteopathic physician, who has given this movement and the future of the profession any serious thought. The income last year that could be safely appropriated to the actual research work of the Institute, amounted to less than twenty cents per member of the profession. Reader, what think you of that? Shall we supinely, by acts of omission, permit this to continue? Or will you right now grimly vow, that henceforth you will do and do now, what you can to make the Institute a source of pride to the profession and a boon to all mankind?

We have got to show to the world that we can do things, that we can prove our contentions, that we are able to cope with the great health problems that confront us as physicians, the guardians of the health of the community. When we have done that and when we have shown the faith that is in us, by giving of our own money to public and quasi-public institutions, then will we deserve recognition from philanthropists and not before.

G. W. RILEY, Ph. B., D. O.,
Chairman of Council.

NEW YORK CITY.

THE OSTEOPATH'S BURDEN

No project ever undertaken by the osteopathic profession more truly merits or more seriously demands the earnest and undivided support of the whole profession than does the Research Institute. To this project the profession is irretrievably committed. We could not go back now if we wished, and failure now would be a blow from which the profession could scarcely recover.

It seems to many earnest thinkers among us that the scientific future of

osteopathy depends very largely upon the Research Institute's accomplishing its object. Already, with but limited funds at its disposal, it has made a great beginning. Thus far, however, our endowment enables us to spend but twelve or fifteen hundred dollars per annum to further the earnest efforts of those who are devoting valuable time and hard work to research studies. This is but a niggardly sum for so great a profession to be devoting to work which means so much to its own perpetuation. While some ninety thousand dollars have been subscribed to the fund by the profession, and while we should today be enjoying an income of about five thousand dollars devoted to this work, so slow has been the payment upon these subscriptions that we are able to devote to the work only about twenty-five per cent. of the amount we should have at our disposal.

That most valuable work has been accomplished, even with very limited means, is evident at a glance. One has but to note the number and the character of the research articles appearing in our magazines to see this. A few years ago articles of research never appeared, because no work along these scientific lines was being done. We read then only the success of the practical side of osteopathy; but in the few years past there have been appearing articles which command the attention and respect of scientific men of other professions. Since McConnell produced actual lesions, and then studied their effects microscropically, thus verifying the scientific basis of our theory, numerous men and women have begun to devote their attention to uncovering the actual scientfic basis of our theory and practice. They have unselfishly given their own time and money to the quest. So far, they have not been generously supported by the profession as a whole.

Just now, the loyal osteopathic physicians of Illinois are about ready to present to the profession a valuable piece of property in the city of Chicago, as headquarters and home of the Research Instiute. Hence, we need now, more than ever, the financial support of the profession. The Institute will be at considerable expense to man and equip the building. At the same time, we should not withdraw from the researchers upon the field the support to which they are entitled.

Why should the profession of osteopathy, a notably successful and money-making one, content itself with spending a meagre thousand or fifteen hundred per year upon the development of its fundamental science? We need hospitals, institutions, endowments; the kindly consideration of wealthy men. We grumble some at the Carnegies and the Rockefellers who shower millions upon the medical profession to further research. But we may take thought unto ourselves, and be sure that givers of large moneys are always shrewd and careful donors. We must be content to first show ourselves worthy and capable. We must first help ourselves. Until we show the world a real Research Institute, founded, supported and endowed by a united profession, the world is going to let us paddle our own canoe.

To think what osteopathy could do for mankind, were it endowed with riches such as back up the medical profession, should kindle the enthusiasm of the most sluggard physician among us. Osteopathy has done much for us as individuals: now let us show our appreciation by giving back to her a few tithings of what she has given us.

Charles Hazzard, D. O.
New York City.

RESEARCH PROBLEMS

Again the profession has passed a milestone in the history of its developments; we are now the possessors in fact of a Research Institute. Ground and building have been purchased, all that is needed to get the Institute into running order is to have it fitted up adequately for the work which we wish done, and then get suitable and capable persons to conduct the practical end of the work. It is hoped that, with this much accomplished, the members of the profession will take a new start and push this matter to the utmost of their ability.

What this Institute needs is more uniform co-operation on the part of the profession as a unit; a few have been doing good work, but in order to do the work for which the trustees have been striving, we need the entire profession to back the movement, and with the profession's co-operation, the institute can be made a power for pushing the osteopathic thought to the front more successfully than any other single force at our command. To the degree that we can prove to the world that we are thinking in bigger thoughts than self only will the world give attention to our efforts; and how can we prove to the world in a more consistent manner that we are really in earnest in trying to benefit the people of the world by and through our professional efforts, than by the establishment of an institution that is dedicated to the work for which we are contending.

Let us lay aside all petty differences, if they exist, for after all our interests are identical, and our strength will be proportional to the uniformity of our united efforts. We are all agreed that what our profession now is most urgently in need of is verification of our theories by means of the proofs which only research can furnish. Yet us then, each and all, take a live interest in this matter and support this movement by both head and hand to the limit of our ability. Talk for it; push for it, think for it; convert the skeptics that we come in contact with, for all they need is a change in the point of view from which they see it; interest our patients and friends in the movement; get them to talk about it; show up its possibilities for the good of our cause, as well as the good it will give to the world in teaching the correct viewpoint of disease; for our viewpoint, with respect to disease, is of the greatest value to the people of the world. For it teaches confidence in the natural forces of the body; confidence in self as to the recuperative faculties; tends to broaden the viewpoint of the body's abilties; thrills the individual with the thought of self reliance, and gives a broader view of the sufficiency of self.

All this is incorporated in the osteopathic concept; it is our privilege to give this thought to a long-suffering people. You know as well as I do how much they are in need of this uplift. Why hesitate to put your shoulder to the wheel of progress? You will never get a bigger opportunity for good than the present, and do not forget that the Institute needs a little financial support, as well as moral support, in order to do all that is hoped for it by the trustees.

What is the nature of the work that we can do in the Institute? O! a great variety of useful work. We can investigate to what extent the osteopathic lesion interferes with the organism's ability to react to its environmental demands; to what extent the internal secretions may be modified by osteopathic adjustments; to what extent the opsonins of the blood are modified by osteopathic treatment; to what extent phagocytosis is modified by the osteopathic treatment; the investigation of the usual osteopathic technique; how best to get certain leverages; the

determination of how much force to be applied for certain corrective work; the study of the mechanics of the spine from occiput to the coccyx, etc. Something along these lines will no doubt be the beginnig, but what the future will reveal is as yet a closed book and the work undertaken will be much influenced by the secrets revealed as the work progresses; but what has been enumerated is of interest to you, to me, and to the world in general.

The question now is to get started, and to get started right. If the reader has any opinions to offer, they will be thankfully received. Write them to Dr. G. W. Riley, Chairman of the Council, New York City, and do not be afraid to speak straight out from the shoulder. We trust that the reader will be as much interested as the writer is in making this Institute a practical institution for the development of our professional problems.

C. B. ATZEN, D. O.,
President A. O. A.

OMAHA, NEBR.

THE OSTEOPATH'S HOPE

Again the A. O. A. is pleased to give over to the management of the A. T. Still Research Institute an issue of the JOURNAL for the two-fold purpose of giving to the profession some of the important results the Institute has secured through its workers the past year, and also to present to the profession its plans of organization, its aims for future work and its financial status.

The able and devoted members of the profession in charge of the Institute present in this number much exceedingly valuable material and they also set forth the possible accomplishments, as well as the financial help necessary to make these possible accomplishments assured results. It is not to supplement their statements, but rather to embrace the opportunity of again putting on record the fact that the A. O. A. bodily stands behind the Research Institute, and to further express in behalf of the A. O. A. officers their keen interest in this research work, that the editor of the JOURNAL proposes to use a page in further discussing the situation.

In the popular sociologic literature of the past few years, the expression, "The White Man's Burden" has been coined. In a different field more recently, the expression, "The White Man's Hope" has been much used. Both of these expressions, slightly paraphrased, are applicable to the research situation. In an article in this issue, Dr. Hazzard speaks of "The Osteopath's Burden." We wish to dwell upon this for a moment in passing to the other phase of the subject.

To advance osteopathy to the point to which its scientific accuracy and therapeutic efficiency entitle it is a burden, but it is largely a burden because it is not properly equalized and adjusted. The A. T. Still Research Institute is the instrument through which this distribution and adjustment may take place. The scripture comes to our minds, "My yoke is easy and my burden is light." Not because the load to be carried was made less, but because the yoke properly equalized and adjusted the burden, and because thereby the interest of those carrying the burden in the burden was enlisted and sustained; their mental attitude towards it was changed.

Just so in our present straits; so long as a few dozen only are interested, as long as their effort is dissipated in trying to arouse the profession—in trying to find yoke-fellows—rather than in sustaining the burden and carrying forward the load, is it a heavy burden. Properly distributed, it is not an impossible load.

"Properly distributed" does not mean that all should give the same or necessarily that all should give cash, but it does mean that all should be interested and all, if not actually pulling, should applaud those who do pull.

At five or six annual meetings of the Association, and at perhaps as many state meetings, opportunities have been given to members of the profession to subscribe to the Endowment Fund. Sums ranging from $5.00 or $10.00 to $2,500.00 have been subscribed on this plan. The Finance Committee has asked all members of the profession to subscribe and after several letters of notification, it made drafts on all who had not notified it to the contrary; so that all members of the profession, whose addresses could be secured, have had the Research Institute problem put squarely up to them. Dr. Hulett discusses this thoroughly in his able paper in this issue, so we need not go into details. The point we are now making is the unequal distribution of the burden. Every member of this profession is able to do something. He can send some amount out of his earnings to the Finance Committee. If he cannot send a dollar per month, he can send a dollar occasionally or a dollar a year. If he has not a dollar, he can write a letter of encouragement. He can at least be one of those who stands by the roadside and applauds those who are pulling the car. That helps some. 1,000 contributors out of 5,000 physicians is not enough. 5,000 contributors is the number needed.

Drs. Hulett and Riley clearly show that the results obtained from this work will be treated as scientific facts should be treated, freely given to all. Those who contribute or those who do not contribute will share alike. To some, this might not be an argument for contributing; but to professional peaple it should be the highest argument. "Freely we will receive, freely let us give" must be the motto of a profession seeking to place its truth before the world.

We speak of this Endowment Fund as the "osteopath's hope." We do so advisedly, for we are convinced that unless this profession does its duty in scientificall developing the principles upon which its system is based and unless it scientifically develops its technique, it is without hope of withstanding the pressure that is being brought to bear to eliminate it as a system of therapeutics. The Allopathic school is getting the ear of the public. It is gaining influence with state legislatures by drawing in numerous sociologic and charitable organizations and with the help of these in a short while it will so control the *teaching of medicine* in this country (as it has already done in Germany) as to make it practically impossible for the osteopathic profession to add to its numbers fast enough to prevent its disintegration as an organization.

Just one thing can stay the progress of this movement, now inaugurated by the allopathic school, and that is to establish the *merit of our principle.* It is all right for us to exert ourselves to the limit to maintain the legislative recognition that has been granted the practice of osteopathy and to extend, where possible, the field of this recognition; it is all right for us to busy ourselves in letting the public know what osteopathy is, what its treatment has done and what it may do; it is all right for us to urge the strengthening of our organizations, state and national; all of these are absolute necessities in the present stage; but none nor all of them will in the long run prove effective unless that for which these efforts are made *is entitled to endure.* We

must not abate our activities along any of these lines, but we must not stop with them. While some of us are leading in all of these activities and while all of us are helping in some of them, those of us who are capable of doing really scientific work, work that can be checked up in any laboratory and proven or disproven by any equally qualified scientist, must be encouraged to go on and develop the principles that underlie osteopathy, and there must be an organization to continue this work and to properly place the results of it before the world.

We know now that the principles upon which osteopathy bases its claim for the cure and prevention of disease is scientific and capable of demonstration. It seems to be entirely probable that the principle medical practice now almost entirely rests upon for the cure and prevention of infections is in harmony with osteopathic technique. If special work develops and proves this true, and if we continue our studies and researches into physiology and pathology as has been done within the past few years with the same marvelous results, the place of osteopathy as the discovery of the greatest helpfulness to mankind has been assured.

Reader, if you believe any of this, you will readily see that *research* is the osteopath's hope. Shall we go on hoping until the time comes when we shall hope against hope, or shall we do the needful toward making hope a realization now while we shall profit by it?

TECHNIQUE

From both a scientific and every-day-practical point of view there is probably no more vital problem before the profession than the problem of technique. This is the part of osteopathy with which the public comes in contact, and by virtue of this contact the future of osteopathy is, or is not, assured. This is the part of osteopathy which exhibits the practical value of our school.

The past and present have been determined by our ability to make good through our technique. That is, osteopathy, from an aggressive and positive point, which comprises by far our major success, has resulted from the success of the rank and file on the firing line. The negative phase, the handicap of therapeutic efficiency and the indifference and lack of frankness to the patient on the part of the older school, has been more or less of an interesting factor, to be sure. The present publicity methods, for example, show clearly that the old school physicians are alive to the situation. Then there is a middle field, the one of hygiene, sanitation, etc., that is common to all schools.

It seems to me that if we, as a profession, would specially devote a part of our time for the next year or two to technique—take stock, correlate and adjust our present knowledge, add new research material if possible, and approach a better common understanding; in a word, attempt a standardization of our technique—that the good thereby gained to both the public and the doctor would be invaluable. This does not mean we should relax one iota in our educational, legislative, or other scientific endeavors; neither does it mean that our present technique is all wrong by any means or that the osteopthic physician, as a class, is "in wrong"; but it does mean, and I am certain nine out of ten of us are of the same opinion, that a concerted action on the part of the whole profession on technique would be of immense practical benefit to every one of us by increasing our therapeutic efficiency. Where is the physician of any school who is so efficient that he has not much to learn?

I believe a careful and detail study of technique, wherein the entire profession contributes its clinical experience, will prove invaluable from not only a practical viewpoint, but will also add to the purely scientific features as well. When we stop to think of the really tremendous daily experience of the profession at large—the variety of disorders, the various methods of adjustment, and the possible several viewpoints of the various methods of procedure—it seems reasonable that a contribution, correlation and study of this mass of practical information could not be other than very helpful to all of us. Each of us has our strong, as well as weak features. Technique of a given region of the body may prove easy for one and difficult for another. A pooling of methods and results will undoubtedly tend to clear up difficult technical (practical) problems, a source of information to all, and an approach toward a standard technique.

I am attempting a study of the technique problem from several angles: (1) Comparative anatomy and anthropology (physical characteristics). Probably something can be learned here relative to structural conditions from a developmental point, anatomical weak areas, and mechanics; (2) Pathology (clinical evidence and autopsy); (3) Experiment (study of joint structures and surfaces, and changes in same following production of the lesion in animals); (4) Mechanics and mathematics. (This is an important field, in our opinion, and requires the services of some one conversant with practical physics and mathematics. This is a specially difficult field, but no doubt there is some one in the profession who can prosecute this work. It would appear that considerable data could be obtained here which would elucidate many of our technique problems); (5) Clinical technique. Results from a well observed and studied clinical problem is as valuable as any evidence, and always serves as a check from either a scientific or practical standpoint. Every osteopathic physician in the field can contribute something of value here.

Recently we sent out several hundred letters to the field with the following questions: (1) Clinically, what do you think of the relative merits of adjustment, stimulation, inhibition, and muscle kneading and stretching? (2) What is your favorite method of innominate adjustment: (a) anterior ilium; (b) posterior ilium? (3) What is your favorite method of adjustment of rotation between fifth lumbar and sacrum? (4) Your favorite method adjustment of rotation between: (a) fourth and fifth dorsals; (b) eighth and ninth dorsals? (5) Of rotation between third and fourth cervicals?

The answers already received are of a high class and manifest a marked interest in the inquiry. Our idea here was to ask questions that fairly represent a certain phase of the clinical field. Our investigation is not to be confined by these questions.

It is obviously impossible, as much as we would like to do so, to correspond personally with the entire profession, and we are utilizing this short article to appeal to all to give us any or all information they can pertaining to the various phases of the technique problem. We would add to the above such questions as varieties of vertebral lesions, character of lesions, points of tenderness, etc. Suggestions and data will be appreciated.

The Editor of the JOURNAL, in several articles the past few years, has clearly shown how necessary it is for our immediate welfare, as well as the clinching of osteopathic truths beyond peradven-

ture for the future science, that we thoroughly demonstrate and develop every phase of adjustment therapeutics. Manifestly this is a work that not only every one is vitally interested in, but also a work wherein every one can contribute in a most material manner by recording his experience and views. Clinically and scientifically the profession is accomplishing a really wonderful work, but with it all there is a still greater work to encompass.

Dr. E. E. Tucker, of the Bureau of Statistics, recently initiated a phase of practical technique that deserves enthusiastic support—the recording of technique indicated and results gained in various diseases. This should be continued by all means for the resultant cannot but benefit every one of us by making more careful and painstaking physicians.

We are not so presumptious as to think the many technical problems are to be settled right away for all time any more than we think we could positively define the eternal principle of osteopathy; but we believe a more or less comprehensive study of our collective and varied experience justifies the reasonable prophecy that our therapeutic efficiency would be greatly increased. Does not the lack of a more or less standard technique — relative merits of several principles and various methods—imply a certain amount of chaos? Can I have your help?

Carl P. McConnell, D. O.
14 W. Washington St., Chicago.

PROFESSIONAL LOYALTY

There are several ways whereby every osteopathic physician may show his loyalty to his profession. Loyalty to osteopathy in the earlier days, and this fortunately on the part of very capable men and women, established the practice on the basis of a learned and dignified profession. We were then distinctly loyal to our organizations; we attended the meetings; we were actively concerned in legislation; we made a personal effort to secure new members.

These conditions, as we have heretofore pointed out, are gradually changing and while it is natural, it is no less unfortunate for the advancement of the profession. The practice of osteopathy is constantly broadening. It is reaching out into the world and being recognized socially and politically, and reckoned with as one of the learned professions. It is touching the state and society at many points where earlier its contact was not appreciated. This new rôle demands increased, rather than diminished, interest on the part of our members for the double reason that we not only now have more points of contact to call for our attention, but there is now active opposition and an appeal to the legislature to overthrow us by the organizations of the dominant school, whereas formerly their attitude was no more serious than ridicule or contempt.

We shall not attempt in this article to cover all the points needing our attention. We have spoken of many of these repeatedly, and we have urged, and must urge, at every opportunity, the interest of the members in those who are not associated in our national and state organizations. Every ethical, competent physician must be interested, and those in the organizations must arouse them if it is sucessfully done. We stress the need of research by giving over this entire edition of the Journal to the cause of the Research Institute. We stress the legislative needs by devoting the October number largely to the work of the Legislative Committee.

At this time we especially wish to urge upon the profession that we respect our-

selves as a learned profession and that we demand this respect from others. As a condition for doing this latter, we must set our house in order and show that we are a dignified and ethical profession. We admit there are several dark corners that need cleaning. There are a few, with diplomas from recognized osteopathic colleges, who advertise in every conceivable manner to their personal gain, but to the inestimable detriment of establishing osteopathy on the basis upon which it must be established. There are a few who are writing illustrated text books on osteopathy and advertising the same to the medical profession. These are utterly without respect or concern for the profession whose credentials, unfortunately for it, they bear. To our regret there are many others who, with no intent of hurting the standing of osteopathy, are indiscreet and unwise in the advertising methods they employ. These, however, we place in an entirely different class. We have hopes of those whose intentions are right, but from all we should insist upon ethical relations with one another and with the public.

In this we need the co-operation of our colleges in seeing that none matriculate who have not the preliminary qualification to make them competent osteopathic physicians, as well as representative citizens in the community in which they may establish themselves for practice. We need the co-operation of the colleges in an earnest effort to inculcate in the student body a spirit of loyalty to the osteopathic profession and to the organizations and institutions that are necessary to its establishment. The students need to be trained to look upon it as a profession they are entering which demands that they maintain cordial and reciprocal relations with their fellows, and that professional life is not a private business which they are to conduct. We need that the colleges recognize the fact that their instruction in technique is inadequate to the needs. Technique is the real contact of the osteopathic physician with the public, his patient, and both the profession and the public are entitled to demand that sufficient attention be given to technique in the schools to render the work of the new graduate not only effective, but at least fairly uniform when that of the one is compared with that of another.

Having set our house in order, as we have said above, it is time to demand professional recognition and consideration from the public and especially the commercial world. It is right when a public man, as Dr. Wiley, slanders the profession, as he shamelessly did at a recent hearing of one of the Congressional Committees, that the whole profession arise and protest, not so much in this insance to Dr. Wiley, for his prejudice has shown that it will do no good with him, but he may be reached through his employer. Dr. Wiley is an employee of the *Good Housekeeping Magazine*, which is understood to be one of the Hearst periodicals, and *Good Housekeeping Magazine* (New York City) can be asked to see that a proper explanation be made of the inconsistency in the statements made by Dr. Wiley before the committee and his subsequent private statements to the effect that he knew nothing of osteopathy. A great many osteopathic physicians have risen to this opportunity and sent letters to the above-named magazine, demanding fair treatment from its employee. Replies are not, perhaps, very satisfactory, as they all seem to be referred to Dr. Wiley for answer, but it at least gives evidence to the magazine, to Dr. Wiley and all others who may know of it, of a respect that we have for ourselves and of a determination not to

permit ourselves to be thus maligned and libeled without entering a protest. There are a few newspapers over the country which use every opportunity to speak slightingly of the profession. When they get beyond the realm of facts they should be called down: but as these letters are often published, such protests should be carrefully written.

In one other way we can, with all propriety, obtain just recognition through concerted action. In this we refer to recognition from the manufacturers and distributors of such articles as the profession regularly uses and from the publishers of medical text books. For the past six months, the JOURNAL has carried the advertising of three of the best known publishers of medical texts, namely, D. Appleton & Co., Rebman Co., of New York, and F. A. Davis., Philadelphia. These publishers are thereby entitled to a consideration from us. They merit our patronage. If we do not recognize those who recognize us, we shall make very slow progress. By uniting in our efforts, not in discriminating *against* any, but discriminating in *favor* of those who are willing to recognize us, we shall gain a recognition for the profession which will give it real prestige and standing in the world outside of ourselves.

Many letters have been sent us recently by members over the country received by them from a New York publisher, in reply to their inquiries as to whether or not this firm advertises to the osteopathic profession. The firm always writes, so far as the letters sent us show, that, while it does not advertise (because it has a rule not to advertise anywhere except in their own publications and in the *A. M. A. Journal*), it does send its books to some of the osteopathic magazines for review. (This is a great recognition!) In a very recent letter, the firm states that it has gone so far as to take space anonymously in one of the osteopathic publications. The following is an extract from their letter which may ease their conscience, but seems to show conclusively that they are unwilling for it to be known that they are advertising to us: "We recently signed a contract for six month's advertising in ———, merely to show the osteopathic profession that we wish to remove any impression that we are unfairly discriminating, although not run over our firm signature." The house further states that it believes that the members of the faculty of the several osteopathic colleges will bear witness that it is liberal with them.

We have nothing to say in regard to any of our publications accepting books for review (although the rule of the JOURNAL is not to review books except from houses willing to recognize us, for the reason that they try to make these book reviews appear as a recognition), and it appears to us to be no great liberality on the part of the medical publisher to submit a book to an instructor in a certain subject with a view to its being adopted as the standard text and thus used by several hundred students. The point we are getting at is that the publisher who is willing to say frankly and boldly that the osteopathic physicians are good book-buyers and pay for what they buy and that he wants their trade, is entitled to receive it over and above those who will not advertise at all or will not let it be known that they are advertising, or who are not willing to exhibit at our annual meetings or let it be known that they are exhibiting, and admit that they do both for the A. M. A., but no others; and yet are surprised that the osteopathic physicians are making inquiries as to whether or not they do or do not adver-

tise to them. We have received so many direct questions of late to know if this or that publisher advertises or does not advertise that we feel compelled to call names as done herein.

There is need of frank, straightforward action on the part of the profession. We are not doing the discrimination. The publishers are doing that. When the agent calls, or the firm writes, simply ask to be shown that the firm recognizes us. If it does not recognize us, any medical magazine will show that it recognizes the allopathic school, and as it has been invited several times to reach the osteopathic profession, the comparison shows that it discriminates against us. Even this one firm exhibits at the A. M. A. meetings and advertises in the *A. M. A. Journal* in addition to its own publications, as a recognition to that school. Let it and the others do the same with us. We are not asking the publishers to advertise in all the osteopathic publications, nor are we designating which one it shall be—we simply ask that they do not discriminate against this profession of more than 5,000 educated, studious physicians. For us to do less than demand this of them as a condition of our continuing to patronize them is not treating ourselves with proper respect.

THE COMING DIRECTORY AND MEMBERSHIP

Within a few weeks the 1912 Directory will be in the printer's hands. The Board of Trustees has authorized that the members of the A. O. A. be grouped in the first part of the book along the same general plan as in the 1911 edition, and the other osteopathic physicians to be designated as non-members by running title over the pages on which their names are printed; we now urge the co-operation of the membership in furnishing us the necessary data. A correct Directory is useful to every member, and a copy as heretofore will be furnished to each member as a part of his membership privilege, and if the address to which his JOURNAL is mailed is not correct, we urge every member to send us the correct address on a post card upon reading this notice.

One other thing: Now is the time we should secure for membership all competent and ethical members of the profession. If approached by you and told that they can now start the year's subscription to the JOURNAL and be listed as a member of the A. O. A. in the Directory and receive a copy of the same, many hundreds of these will be added to the list within the next few weeks. We tried to set up this need in the last issue of the JOURNAL. We propose to merely refer to it here. Co-operation is needed. Will you co-operate?

NATIONAL ASSOCIATION OF STATE SECRETARIES

The JOURNAL wishes to call particular attention to the founding of this organization at the Detroit meeting. Minutes of the session were received too late for the last issue and will be found in this number of the JOURNAL. It seems to be the consensus of opinion of all who have considered this question that the organization is much needed and will prove a most powerful aid in our organization work.

The Board of Trustees of the A. O. A. heartily approved of the plan when it was submitted to it and in its behalf the JOURNAL now urges the co-operation of every state organization in uniting in this effort which means increased efficiency for the state organizations.

We print in this issue a list of the state officers and will print in the coming Association Directory in addition to state officers other facts of the organization of

the several state societies as will be of interest. Below are printed copies of the By-laws having reference to an affiliation and co-operation of the state organizations with the national body.

One thing particularly is needed: That the profession in every state feel the necessity of maintaining an organization and that this organization realize the importance of keeping active and energetic men and women in its official positions, especially as secretaries of the organization. We cannot afford for our organizations to disintegrate and die in any state. Because a law has been secured in a state is no reason that that law will be kept permanently on the statute books. As soon as the medical organizations find that we have lost interest they will prepare to undo us. To be prepared for war is the only way to maintain peace. Besides this the cause in general needs the efficient activity and co-operation of every state in particular. We cannot maintain a strong national organization without efficient state and local co-operation.

ARTICLE I.— PART II

CO-OPERATING ORGANIZATIONS

SEC. 1. *State Societies:* Any state osteopathic society desiring to co-operate actively with this Association shall submit to the Board of Trustees a statement showing the following:

(a) Particulars of the action of the society authorizing the statement.

(b) Copy of the constitution and by-laws of the society, and any other regulations, showing general conformity with the regulations and standards of this Association.

(c) Statement of action by the society making the code of ethics of this Association the standard of the society, and if satisfactory to the Trustees, such association shall be made a state district of the American Osteopathic Association, and the members of each association shall be members of both. The American Osteopathic Association dues shall be collected by the state association and remitted to the secretary of this association. Other state associations may elect a representative to the annual meeting of this association who shall be a member of this association, to represent their interests.

SEC. 4. *Representatives:* Each co-operating organization may elect a representative to the annual session of this Association, who shall be a member of this Association. This representative shall have the privileges of a member in the meetings of the Association and Board of Trustees in the introduction of business and in discussion, in all matters affecting the interests of the co-operating organizations, but without vote. Certificates of representatives must be approved by the Committee on Credentials before representatives are permitted to take their seats.

SEC. 1. *Nominations:* On the second day of each annual meeting the accredited representatives from each state association and the Board of Trustees shall meet and act as a nominating committee for the convention, and shall present on the morning of the third day of the meeting a nominee for each office to be filled by the association as provided by its constitution and by-laws.

The report of this committee shall not preclude the nomination of other candidates by members from the floor.

Reports of Research Institute

REPORT OF COUNCIL

To the Board of Trustees of The A. T. Still Research Institute:

GENTLEMEN:—I herewith submit a report of the transactions of the Council for the past year.

At the meeting held in Chicago last year, the Council was informed that it would have about $1,400.00 or $1,500.00 (estimated) with which to carry on the work of the Institute during the year. It was, therefore, decided that about $1,200.00 of this amount might safely and consistently be appropriated and apportioned among those doing research work whose efforts had proved of sufficient merit to warrant the approval and patronage of the Institute. The balance would be utilized in defraying the general expenses of the Institute.

We then began corresponding with various members of the profession who were known to be doing meritorious work along research lines. As a result, arrangements were made with the following: Drs. Louisa Burns, J. Deason, C. A. Whiting, Carl P. McConnell, Frank Farmer and Sidney A. Ellis, to do research work in connection with the Institute, and $1,000.00 was appropriated among them,

leaving $200.00 of the probable $1,200.00 unappropriated, but to be used as future necessity might require. This latter proved a very wise precaution, for the splendid campaign for contributions conducted by the Finance Committee necessitated its appropriation for that purpose.

One thousand dollars is a meager, niggardly sum for a profession of over five thousand physicians to invest in actual research work, to spend in solving the many problems that are awaiting our solution. Shall we look at it as contributors to this cause? Who, then, is there among us that is not financially able, that is not philanthropic enough, that has not sufficient professional pride to cause him to contribute yearly more than a franc, more than twenty cents, to the scientific solution of our fundamental problems? Is there such an one? God forbid!

Let us not look at it alone, however, from the point of view of givers; but also from the viewpoint of receivers. Is there one in all the profession who has not been benefited more than twenty cents worth through the efforts of these workers? Who is not more than twenty cents bigger professionally for what they have done.

It is to be regretted that we were unable to do more; but still we rejoice that we were able to do *that* much. It is a humble effort; but the gratifying thing is that it *is* an effort, that it is a *start*, and it will grow.

Your Council further regrets that there were not more associated with the Institute in doing research work. Slowly the number of workers will increase, however, and the results of their efforts will have a cumulative effect on the profession, stimulating more to do work along that line. And so, in time, both funds and workers will have increased to more gratifying proportions.

It is not intended, however, to give the impression that a thousand dollars is the total amount of income from the endowment fund that has been at the disposal of your Council the past year. $580.00 was returned to the Endowment Fund in payment of a loan made to the Current Fund last year, and $190.97 was paid for the publicity campaign expenses of last year. The finances of the Institute, of which the Council has control, is the income from the endowment and is known as the Current Fund. Another fund of which the Council voluntarily took charge is the Burns's Book Fund, which has no connection, however, with the endowment fund of the Reasearch Institute or its income. The only connection being that the Council had charge of the publication and sale of Dr. Burns's books, and kept an entirely separate account, the books having far more than paid their publication costs.

For the success of that undertaking from practically every viewpoint the Council and the Institute are under profound obligation to Dr. E. R. Booth. The work he did was prodigious, the sacrifices he must have made enormous, and all for the love of the work and the profession, a supreme example of unselfishness.

The actual research work undertaken during the past year and with which the Research Institute has been identified financially has been the study and attempted solution of the following problems or questions:

The effects of lesions on the spinal cord paths;
The effect of mechanical stimulation upon the Opsonic Index;
Determining the length of time that the Index is kept above the normal as a result of the stimulation;
The atavistic characteristics of abnormal blood;
The effects of bony lesions upon color vision, and the visual fields;
Etiology and treatment of the borderland psychoses;
The effects of blood pressure variations upon the functions of certain organs;
The effect of dorsal lesions or gastric secretions;
The effect of lower dorsal lesions and splanchnic inhibition;
The effect of osteopathic stimulation and inhibition on both animals and man;
The effect of innominate lesions on dogs;
The bacteriological nature of "colds;"
The phenol treatment of tetanus;
Cantharides as an immunizing agent;
The demonstration of the osteopathic lesion through the aid of X-ray pictures before and after treatment.

The work on some of these questions is completed, on others it is not yet completed. Some of these problems have been tried many times, and others may have to be tried time and again before a conclusion is reached.

From this list it may be readily seen that the work undertaken covers a broad field of fundamental principles. These problems were wholly the selections of the individual workers, each one doing the work that most appealed to him; and while they are practical problems and most comprehensive in their combined scope, yet it would seem desirable, yes, advisable, that the Council formulate some program, some general scheme, comprehensive in character, and co-ordinated in its parts so that the findings of one research worker will dovetail, as it were, into those of the others. In that way no two will be working on exactly the same problem. Such a plan would seem most desirable just now, while we at best have but few doing research work.

Another duty along the same line must soon be considered by the Council, the problem of working out a plan for the organization and business management of the Institute. It will be necessary to have this ready to put into operation as soon as the Institute is housed, which bids fair to be soon accomplished through the efforts of the profession in Chicago. Then, too, the plan, program scheme, or curriculum for the management of the professional work of the Institute must also be worked out. These questions are of such importance that they demand the careful consideration of the Council and Trustees at the coming meetings of these bodies.

Even though the Illinois Osteopaths succeed in supplying the Institute with a home. a local habitat, our beginning will of necessity have to be a very modest one. Most great enterprises have had small and modest beginnings. The great "Rockefeller Institute for Medical Research" had a like beginning. The first gift for its establishment was made in 1901. Until 1904 the funds of the Institute were appropriated, as has been done by our Institute, to aid and support investigators in different parts of the world. In 1904 the Institute leased a small house at No. 127 East Fiftieth Street, New York, and there began its first investigations. Today it occupies a tract of land of about four acres, extending from Ave. A to the East River and from Sixty-fourth Street to Sixty-seventh Street. Commodious, up-to-date buildings and a hospital have been erected there. The total endowments amount to nearly $7,200,000.00. We hope that our small beginning may develop into a boon to mankind and a credit to our profession.

Respectfully submitted,

G. W. RILEY, D. O.,
Chairman of Council.

NEW YORK, June 26, 1912.

REPORT OF PUBLICATION DEPARTMENT

At the open session of the Research Institute at the Meeting Dr. E. R. Booth reported as follows;

I wish to say a few words in connection with the publication of reports of the work done by the Research Institute. These reports have appeared very promptly in the JOURNAL OF THE A. O. A. and other osteopathic journals as the work has been completed from time to time. It was the purpose of the Institute from the begining not to hide its light under a bushel; and whenever we found anything worth presenting, it was the policy of the Institute to publish it at once in order that the profession might have the benefit of the work.

A little over two years ago it was decided to publish a bulletin, called Bulletin Number 1 of the A. T. Still Research Institute, copies of which you will find in the Exhibit in the adjacent room. If any of you have not seen it or do not possess a copy, I would advise you to purchase one before leaving Detroit. The Secretary of the A. O. A. has copies for sale. Following that, the work done was the publication of Volumes I and II of "Studies in the Osteopathic Sciences," by Dr. Louisa Burns. They followed up the work in a general and comprehensive plan that she has outlined from the beginning, Volume I, "Basic Principles," having been already published.

When the Council decided to assume the responsibility of publishing Volumes II and III, the work very naturally fell upon me as chairman of the Council at that time. Bids for the printing, etc., were received early in 1911, and the contract was given to Monfort & Co., Cincinnati, because they were the lowest bidders, and because they were within easy reach of me, so that the delays that would have resulted if the work had been done elsewhere were avoided. They were reasonably prompt in carrying out their contract. The chief delays were due to my inability to get promised mailing lists to use in sending out circulars and later to the necessity of transmitting copy, proof, etc., between the author in Los Angeles and the printers.

The first circular was sent out in March, 1911. By April 1st, the subscriptions were sufficient to justify us in taking the risk of going on with the work. Early in April notices were sent out to all subscribers to remit to our Treasurer, Dr. H. M. Still, Kirksville. As he reported receipts from time to time the subscribers' cards were transferred to the "paid" list. As about 100 were still deliquent in October, a special notice was sent to them. Many responded, but there are still about 50 of the early subscribers who have not paid. When the new Directory of the A. O. A. was received, the former mailing lists were carefully checked up and a circular was sent to all addresses found to whom the first circular was not sent.

Except in the case of one or two dealers, and complimentary copies to journals, and to several orders by Dr. Burns, I adhered to the policy of sending the books to paid subscribers only. Orders for Volume I were sent to Dr. Burns to be supplied by her. Volume II was sent out in July by Adams Express Co. on agreement that it would charge postage rate, which was 16 cents per copy boxed and wrapped. The Express Company violated its contract several times and I decided to send Volume III by mail, which has caused less trouble. The first batch of Volume III was

sent out in October, 1911. All paid subscribers have been supplied to date.

I wish to state that most of the subscribers were quite prompt in remitting to Dr. Still. For a time he reported to me weekly, and as soon as the subscriptions were sent in, the volumes went out. As soon as this work was done, and I had accomplished all I could, I turned over the undistributed volumes, and the unbound volumes, to Dr. Burns, and I expect to turn over today all the residue in my hands pertaining to this work, in order that she may complete the distribution of the work and supply volumes to those subscribers who have not already paid if they send in the subscription price, and also supply the demand that may come from the profession in the future.

There is nothing in connection with the Research Institute that I have done that has given me more satisfaction than the publication of Dr. Burns's books. It is true it entailed upon me a considerable amount of work, but it was a work of much pleasure after all, and the number of letters that I received complimenting upon the results, and particularly the author upon the work she has done, are really very gratifying.

The remark was made twice yesterday in my hearing by one of the rather conservative members of the profession, a man who is not ordinarily given to public enthusiasm, that he would not take a thousand dollars for Volume III if he were unable to get another copy. I heard the remark made this morning that it is the belief that Volume III is probably the ablest book that had been published by any one along the lines with which it deals. Those of you who are not taking advantage of the opportunity of securing these volumes and studying them are missing the greatest chance that you have yet had, as they are thoroughly Osteopathic in every sense of the word, and no progressive osteopathic physician can afford to be without them. (Applause.)

Departments

CORRECTIVE EXERCISE

R. K. SMITH

Dr. Emily G. Wilson, of Boston, sends the following exercise calculated to correct sluggish liver, which is to be taken on bed in loose clothing:

Patient sitting on heels, knees fixed, feet extended, spread knees apart, rotate head to left, then, bending the trunk forward, rest right side of head and upper part of chest on pillows high enough so that, while the liver is thrown against ventral wall, it does not incline upward. In this position all abdominal muscles are thoroughly relaxed. Now place the palm or surfaces of extended fingers along inner border of lower ribs just over liver, the left hand above the right (the fingers seem to fit better in this position), the ulnar surfaces of forearms resting on thighs just above knees which act as falcrums over which to make pressure against the liver. With the fingers still extended, suddenly flex and extend them from the metacarpo-phalangeal points *only*. This gives the liver a most effective shaking: or it may be thoroughly squeezed between the fingers and the diaphragm by pressing upward on it with the fingers from below and at the same time taking a deep inspiration, contracting the diaphragm down hard on it from above.

This exercise may also be taken with patient on left side, lower shoulder and hip back, knees flexed, right above left, (Sims' position nearly) placing extended fingers underneath lower border of ribs over liver and flexing and extending fingers as described above.

Irwin O. Allen, M. D., of Richmond, Ind., has some interesting original ideas on exercise which he has communicated in personal correspondence, as follows:

The common impression of exercise is that it is an external process, working from without inward. For instance, climbing a hill is said to be good exercise, as if the hill and the climbing were the essential elements, when, in fact, the *efforts made* in climbing the hill is that which is good exercise. Then, as *effort is an internal process*, and the visible movements of the trunk and limbs are but expressions of this process, it is evident that exercise is an internal affair with external manifestations. As effort implies resistance, overcoming gravity or other decided forces enhances the benefits of exercise. *Effective exercise, then, is the act of internal bodily force overcoming an external resistance.*

In order to get a better understanding of what is meant by exercise, let us forget the word exercise and study the functions of a muscle. In this study we find that the function of a muscle is to contract and relax, and that upon this contraction and relaxation depend all the movements of the animal body. Primarily, the muscular contractions most important to the welfare of the individual are those of the involuntary system. Eventually, however, the contraction of voluntary muscles is of no less importance, for without the vital stimulus produced by voluntary movements, the involuntary muscles fail to develop or become enfeebled.

The voluntary muscles may be partially contracted with but little or no movement of the bony structures. But in order to get the constitutional effects of this function, the contrac-

tions must be complete. And to accomplish this the joints must be brought into action, and the bony structures forced through their entire range of motions. To effect the deeper structures and obtain a decided influence over the involuntary system and vital organs, these voluntary contractions must not only be made complete, but they must also be made firm. In order to enable a muscle to contract firmly and completely, the moving structure throughout its whole range of motion must find a firm but yielding resistance, such as that furnished by the oar when rowing.

Such muscular contractions are more than voluntary. They are in a class by themselves —the *forced*, voluntary contractions—and of necessity are slow, deliberate, prolonged, free from hurry and excitement. They are initiated, executed and sustained by a deliberate act of the will. Thus those *muscular activities worthy of the name of health measures are mental as well as physical.* And in their execution the mental and physical properties act and react mutually upon each other. Thus we must distinguish between the simple or free, and the forced contractions of voluntary muscles. In one form of contraction the act may be automatic, spontaneous, unconscious, or the result of suggestion; the other requires a deliberate *act of the will* and demands all the forces of functional activity for its execution.

PERSONAL HYGIENE

O. E. SMITH

VII.

Hygiene of the body may be very greatly modified by afferent impulses aroused by cerebral congestion, created by excessive cerebration—such congestion giving rise to secondary muscular contractures, which disturb function greatly.

Morat says of intellectual labor:

> "Like physical labor, intellectual labor, if prolonged, brings about *fatigue*. Although not precisely similar in both cases, the analogies and resemblances are great. This results from the fact of *intellectual and physical labor never being entirely independent of each other*. Sometimes one and sometimes the other predominates more or less, according to circumstances."

In writing of secondary effects of intellectual activity, the same author says:

> "Thus physical work induces a physical condition which keeps it within bounds by the operation of one of the fundamental reactions of the nervous system. Intellectual labor, in turn, is the cause of a physical waste, much less, it is true, but still appreciable. The absence of movement of the muscles during the exercise of attention does not always imply their inactivity, but often conceals a certain tension. In this respect there are great differences, according to the individual and also to the degree of effort which accompanies the exercise of attention. In some, a relaxation of the fingers may be observed (MacDougal). In every case, intellectual activity modifies the apitude of the nervous system to give rise to muscular contractions. This is made manifest by the ergographic test when applied at the end of difficult and prolonged psychical labor. The curve of fatigue appears with much greater rapidity. Just as excess of physical labor temporarily diminishes intellectual activity or aptitude, so does excess of intellectual labor diminish physical activity and aptitude. We say excess, for if fatigue be avoided, the contrary results: a small amount of work increases the muscular force, and this augmentation is evidenced by the test of endurance and also by that of force."
>
> "The reaction of psychical effort carried so far as to induce fatigue does not confine its effect to the external motor apparatus; the system of organic life also feels this reaction. During the exercise of attention, the pupil dilates (Mentz), the convergence of the two eyes diminishes, and the crystalline lens becomes flattened (Heinrich); the body temperature may also be increased (Gray)."
>
> "The *circulation* and the *respiration* undergo modifications. A short and energetic intellectual effort produces cardiac and respiratory acceleration, and a vaso-motor constriction of the peripheral vessels, followed by a slight slackening of these movements. An intellectual task lasting several hours, the body being in repose, causes weakening of the heart's action and a contraction of the peripheral capillary circulation. This contrast is also observed in muscular exercise, only the figures are changed in value."—Morat.

Probably no physiologist has studied the subject of fatigue more exhaustively and scientifically than A. Mosso, and in his study of this subject he makes the following statement:

> "Some authorities maintain that our body has many reservoirs of energy, diverse one from another, and adapted to the diverse needs of life, and that these magazines of energy can be drawn upon independently of one another. They believe, for example, that the amount of force at our disposal for muscular movement may be exhausted by walking or other muscular contraction, while the pro-

vision of energy which the nervous system holds in reserve for the work of the brain is left intact. And this provision of energy may remain distinct from that which serves, for example, for the genital functions. I do not believe that our organism is made in this fashion. The nervous system is the sole source of energy; and although we must admit a certain amount of localization, this is not of such a nature as to prevent the neighboring organs feeling any loss through the great activity of any one organ. The exhaustion of energy is general; and all the magazines of energy can be drained by the exaggeration of any activity whatever of the organism. The conclusion to which we are led by my experiments is that there exists only one kind of fatigue, namely, nervous fatigue; this is the preponderating phenomenon, and muscular fatigue also is at bottom an exhaustion of the nervous system."

In the study of intellectual and physical labor, our first impression is that the two phenomena are entirely different in their origin, and that their ultimate effect upon the organism will be quite different. But if, as Morat points out, physical and intellectual labor are inseparable one from the other, as shown by muscular contraction on different parts of the organism in intellectual labor, and intellectual stupor and dullness in great muscular labor, then we may anticipate the reaction of one on the other, when either is used to excess. Mosso states the proposition in a different way when he says "that there exists only one kind of fatigue, namely, nervous fatigue . . . and muscular fatigue also is at bottom an exhaustion of the nervous system."

In performing either intellectual or physical labor there always ensues waste from metabolism, and this waste is really the origin of fatigue, and is used by nature to protect the tissues from complete destruction, by arresting metabolism. Excretion of waste from the tissues, where metabolism is rapid, does not take place as fast as it is created, hence this waste begins to accumulate and produce fatigue. Metabolism is most rapid where functioning processes are in progress, therefore in intellectual labor metabolism is increased in the nerve cells of both the brain and spinal cord, and of course waste is also greatest here.

In order to sustain this rapid metabolism in the brain, or in fact, any other local part of the body, nature provides the organism with a mechanism for supplying a great amount of blood to these local areas, during excessive functioning periods, which mechanism is governed through the nervous system.

"The brain through a nervous organ, which is both a receiver and dispenser of impulses, of which it maintains an inexhaustible reserve, is none the less subject to the same law as other organs. It is through the spinal cord and the great sympathetic that it sends to itself (to its vessels) the vaso-motor impulses which govern its circulation (recurrent motricity); it is by the medulla oblongota and the trigeminal nerve that it conveys in a contrary direction the sensory impulses which take part in this controlling cycle (recurrent and sensibility)."—Morat.

Owing to this vaso-motor mechanism of the brain (recurrent motricity), so-called, it becomes possible for the organism to flush the brain with blood, and because of the great stimulating power the blood possesses for the nervous system, a very great reaction is obtained from the nerve cells so stimulated, which results not only in cerebration, but also in increased muscular tonus in both voluntary and involuntary muscles of the organism.

Cerebration is, of course, a voluntary act and because of this fact it becomes possible to maintain this function to excess. Modern business and professional life require great mental supervision, and in order to meet this demand the brain is often used far beyond its physiological endurance capacity. When this point is passed the mechanism of cerebration begins to show signs of failure, becoming less efficient in cerebration, in control of organic functions, and in maintaining normal tonicity throughout the organism.

Some cases best illustrate my point here:

CASE I. School teacher in city high school. Worked very hard teaching school through the day, grading papers far into the night, and "catching up" with other work on Sundays and other holidays. Lesions: cervico-dorsal muscular contractures; rotation on its transverse axis of third dorsal vertebra, with acute tenderness in local tissues attached to this vertebrae; approximations of the dorsal vertebrae, with rigidity of spine; and displacement of ribs. Symptoms: insomnia, nervousness, gastritis, intercostal neuralgia and constipation.

This case was due almost wholly to excessive intellectual labor. The lesions could be corrected by osteopathic treatment, which was done several times; but the excessive mental strain reproduced the lesions as often as they were reduced, until she began to rest systematically, then her recovery was much more permanent.

CASE II. Manufacturer, 40 years of age, was compelled to leave his business for a rest on account of exhaustion. While the rest helped him some, he did not recover satisfactorily. Lesions: contrac-

ture of the cervico-dorsal muscles of the most extreme type, producing very great rigidity of the spinal column in this region of the spine; approximation of the dorsal vertebrae, especially at the 5th and 6th, which were also slightly anterior. Symptoms: intense nervousness, dizziness, high blood pressure, gastro intestinal indigestion, with excess of gas formation in stomach, mental depression and fear.

This case, like the first, is due to excessive mental strain. He comes out of his plant at the end of the day's work intensely nervous—says sometimes he feels like jumping out of the window when he comes up for treatment. His muscles are contracted much worse at the end of a day's work than they are in the morning, and says he feels much better in the mornings. Patient is still under treatment, but is now making a satisfactory recovery. He had deranged the physical mechanism of his body by mental work, to such an extent that nature was unable to adjust the organism, automactically, even with rest from business. The stimulation of the nervous system from the secondary lesions of muscular contracture was intense.

There is no question but what excessive cerebration creates a pathology in the physical mechanism of man.

This pathology of tissues begins when labor begins, in the waste created by metabolism, and slowly increases as labor proceeds. If the individual is wise enough to secure a sufficient amount of rest between hours of labor, to insure complete excretion of waste from the tissues, then there will be no cumulative effects of retained waste arising from day to day in the system to create a pathology of permanent nature in the organism, because the automatic adjusting power of the body will keep the waste eliminated.

But if man seeks to extract a larger amount of labor from his body than nature has given him power to produce, he will certainly secure such labor at the expense of his own physical mechanism, and create a pathology of the tissues that will limit and hinder the different parts of the body from performing their normal functions, and thus destroy his own health.

So far as personal hygiene is concerned in such cases, its prophylactic phases begin in reducing the amount of intellectual labor performed. This will reduce the cerebral congestion which is the factor acting as the primary agent in creating the afferent stimuli.

The next part of the treatment should be directed toward relaxing the muscular contractures in the skeletal muscles along the spinal column, which act as secondary lesions to the spinal nerves and create afferent stimuli, also, and in so doing disturb function of organic parts receiving their nerve supply from the spinal cord.

If such muscular contractures along the spinal column produce, reflexly, visceral disturbances ending in disease, then osteopathic treatment, which removes such predisposing factors to disease, ought to be considered hygienic and useful.

SANITATION

C. A. WHITING

As the oyster season is now upon us, a few words in regard to the dangers of these delicious bivalves may not be entirely out of place.

As early as 1816, Pasquier, a French physician, noticed that there was some relationship between the use of oysters and typhoid fever. His observation of facts was correct; but, not unnaturally, his explanation of these facts bore little resemblance to what we now regard as the truth. After the observations of Pasquier, the whole question of the relationship of oysters to typhoid fever lapsed, until it was revived by the English physician, Cameron, in 1880. From this time on, numerous observations were made which tended to show, more and more positively, the fact that a close relationship exists between certain outbreaks of typhoid fever and the use of oysters.

The matter was most completely traced out in this country in 1894, when there was an outbreak of typhoid fever among the students of Wesleyan University, Connecticut. This epidemic was investigated by Prof. W. H. Conn. At that time there were seven fraternities in the University, of these three indulged in the liberal use of oysters, and in these three fraternities, twenty-three cases of typhoid fever developed. At the same time, it was noted that the students of Amherst College who used oysters also developed numerous cases of the same disease. In the investigations made by Prof. Conn, it was found that the oysters used by both colleges were obtained from water which was more or less contaminated by sewage.

As a result of Prof. Conn's investigation, it was found that the typhoid bacilli may live for a period of at least eighteen days in the gills and alimentary tract of the oyster. He also found that the typhoid bacilli may live in sea water for a period of from three to five weeks, and that in cockles, the typhoid bacilli may live indefinitely and multiply.

Sewage is not the only way in which these mollusks may become infected. It is to be remembered that there is a possibility of their becoming infected from the hands of those who pack them and from the various processes which they may undergo while being prepared for shipment. Dr. Boyce, of England, recently made a careful investigation of 140 oysters,

taken from the open market, and he found that of this number 104 were infected with the bacillus coli. It is needless to say that if the sewage from which these were infected had contained the bacillus typhosus, they might equally as well have been infected by this extremely dangerous organism.

As cities multiply along the sea coast, and upon rivers discharging into the ocean, and as they increase in size, the possibility of infection continually increases, and public safety will more and more demand the careful inspection of oyster beds. In tracing the history of typhoid fever cases, the physician should not fail to recognize the possibility of oysters being the source of infection.

Current Comment

C. C. TEALL

Unless one has deliberately set out to read the medical press with a definite, specific object in view and that the finding of material of special interest and benefit to osteopathic readers, he does not realize the pancity of such matter, but he is struck with the unending sameness of ideas and subjects filling their pages. The allopathic journals are devoted to surgical technique, some diagnosis and more or less medication; seldom, if ever, going beyond these lines. The homeopathic journals follow largely seeming to wish to appear as near like their older brother as possbile, but mose of them appear true to their own materia medica, and are constantly pointing to the influence they have had in changing allopathic dosage. Of all three drug school journals, the eclectic is the most entertaining, if not most instructive, for they are breezy and optomistic, even if they have very slight grounds for the latter in the progress of their school. It is certain, however, that the editor of this department reads many acres of dreary print, hoping to find a few grains of truth for the entertainment of the JOURNAL readers.

One magazine is almost always sure to furnish amusement from the serious way in which it holds itself and the Editor is usually in a state of mind concerning the osteopath.

Previously, the *Journal of Advanced Therapeutics* has been quoted in these columns. In the February issue, under the caption of "Impediments to the Establishment of Modern Therapeutic Methods," the editor voices a plaint often heard in our own publications:

There is probably no field in therapeutics at the present time which is suffering more at the hands of its "would be" friends than the science of physical therapeutics.

The man who undertakes to use electricity, the x-ray, mechanical vibration and the rest of the physical measures, without the requisite knowledge for their scientific employment, places an obstacle in the path of those who do; because there is no department of the science of medicine in which an accurate technique contributes more than in the therapeutic employment of physical measures.

Two very prominent surgeons of the West who

All of which is true, for only a very small portion of the medical profession ever get beyond the surgical and drug teaching of their college days.

As we before noted, the editor is worried over the osteopath as is shown in the concluding paragraph of the article:

Medical men should not require warnings against trifling with the things which they do not understand, and osteopaths and irregulars should be frowned upon and disbarred for employing an agency which they are not entitled to use in the States in which they are licensed.

These things would be impossible if the layman could be instructed in the dangers of allowing experimenters to employ electricity when treating them.

In the June number of the same journal is an editorial calling for a department of physical therapeutics of the American Medical Association:

The subject has been under consideration for several years and petitions have been presented before the House of Delegates of the American Medical Association, urging the formation of a section of physical therapeutics. The matter was again under consideration and an active effort was again made and a formal petition presented requesting the formation of the section. The justice of the cause is fully appreciated by the members of the A. M. A., who often find it difficult to get the papers they would contribute before other sections of the association.

The failure to secure such a department aroused much feeling on the part of the electrotherapeutists, and furnishes another object lesson as to the impossibility of getting an allopath to look into anything outside his own narrow field.

Again, in the February issue of the same journal, under the title "Electricity in Orthopedics," we find this paragraph:

The promptness with which the sprained ankle or lumbago is cured by these methods is a fair indication of the possibility of relieving other inflammatory conditions.

The inflammation associated with luxations of the hip joints, the shoulder, the knee-joint or of the sacro-iliac joint, the same two conditions indicate the judicious employment of the static wave current and static spark and judicious exercise. Pain and disability are promptly relieved and the neuritis present with a sacro-iliac misplacement disappears.

The presence of infection or the fracture of a bone or ligament are the only conditions which preclude the possibilities of a prompt recovery following these treatments without rest or other extra precautions.

Concluding with this truism:

The medical profession is too conservative and so slow to grasp new methods that it is probable that many joints will be anchylosed before these facts are established.

When one is endowed with an optomistic mind like the author of the above, he is not afraid to make any claim in or outside the realm of reason, but we would like him to tell how the divine spark corrects luxations spoken of, also who told him about "a sacro-iliac misplacement." It sounds as if he had been reading forbidden books behind closed doors.

CONTAGIOUS AND HEREDITARY

Numerous cases of appendicitis in the past few weeks have occurred under circumstances which, in the Dark Ages at least, would have suggested that this disorder was both contagious and hereditary.

have performed many operations for appendicitis have recently gone under the knife for the same condition. One of these was Dr. Charles H. Mayo, of Rochester, Minn. It seems, indeed, to be a fact that the abdominal surgeon is quite prone to be a shining mark for the disease.

An infant only a few weeks old recently was operated upon successfully for appendicitis. Its family history shows the interesting fact that the father of the child had but a short time ago also undergone an operation for appendicitis. A consoling theory based upon well-known principles of anthropology is that extirpation of the appendix systematically through a few succeeding generations is likely to make Nature forget to insert any appendix in later decendants.

The above is from the *Monthly Cyclopedia* and probably belongs in the "seriously thought to be funny" column of that rather unique publication. It is to be hoped that some day the writer may come in contact with Weissman's well known work on "Heredity," where he can learn that mutilation does not affect the race through any number of generations.

PAIN IN THE BACK

If one goes over the history of patients suffering from Bright's disease, from stone in the kidney, or from spetic infection of the kidney, it is surprising to note how few cases, if any, have pain in the back; that is to say, pain referred to the vertebral column. In most of the these cases the pain is a dull ache or soreness referred to the lumbar region, and in the case of colic it is usually referred along a definite path. So, also, the number of cases of pain in the back, popularly referred to some displacement of the pelvic viscera, is far too great to have any definite scientific reason for localizing the cause in that region, and the proof of this lies in the fact that so many of the leading gynecologists of the day are very conservative in their operating on this class of cases.—W. G. Turner, in the *Montreal Medical Journal.*

APPENDICITIS IN WOMEN

In addition to these distinctive characteristics of the pain and nausea which accompany appendicitis in women, much help has come to me through a recognition of Morris's "Pair of Points." His conception of this reflex, sympathetic phenomenon is very beautiful, and his description of it very plain and very simple indeed. And it is that, just to the right and just to the left of the umbilicus, at a distance of about an inch to an inch and a half and deep down, lie sympathetic ganglia, sending nerves of communication both to the pelvic organs and to the appendix. Now, pain produced by pressure at both of these points with the ends of the fingers would indicate that the tubes and ovaries are most likely the main sites of its origin; while if pressure on the left is negative and on the right is painful, the burden of evidence is against the appendix as being the offender.

Remember, if you please, that none of us are infallible, and that no one realizes more fully than I how difficult of solution are many of these problems; but I do believe most emphatically that a close and careful study of the *character* of the pain, and of the *rational* as well as of the *physical* signs, will help us to a correct diagnosis, which is the keystone to all of our highest achievements and of prime importance in cases of painful pelvic disorders in young women, where a vent in the abdominal wall for the removal of a normal appendix by the "stump operation" (Price) creates a far worse pathology than that which existed before.—*International Journal of Surgery.*

These two clippings from widely separated titles show the authors to be thinking as well as conservative men.

Were they likewise receptive how quickly would they realize the source of these bewildering pains and symptoms when explained by osteopathic examinations.

THE ECLECTIC AND ANIMAL THERAPY

When one reads the strange history of materia medica and therapeutics he is astounded by the hundreds of nauseous animal substances and filthy dejecta which have held a prominent place in the official as well as the unofficial regular medicines of even educated physicians. Vipers, toads, dried menstrual blood, human feces, human urine, the saliva of a fasting man, secundines of a woman, pulverized mummy, scrapings from the skull of an unburied victim of accident or legal execution, moss from such a skull, sow-bugs, earthworms, ear-wax, wood-lice, and bed-bugs *ad nauseam* are but a modicum of the delectable substances which have figured in the therapeutics of the past. Even today we find in the therapeutics of enlightened practitioners substances that would suggest Chinese rather than Occidental preferences. Medicines are still furnished bearing a close relation to many of the above mentioned dainties, for has not a scientist in one of our great institutions of learning found a decided heart tonic in the slimy exudate from the common toad? One of the most disgusting phases of medical practice was the introduction of isopathy, long and loudly condemned by the regular profession, but now being again embraced in a closely assimilated form by many members of the profession in the modern form of the "never vaccines." Since the introduction of antitoxins and vaccines we have observed less ridicule of the homœopaths by the regulars, for if not identical in action they closely bear out the homœopathic law of cure. While these things confound and astound us, is it safe to ridicule anything or any sect in medicine? Verily there is no new thing under the sun. Still let us be thankful that outside of lard and wool-fat, suet and spermaceti and bees-wax as external applications, and the employment of sugar of milk and honey, cod liver oil, and some of the digestive ferments internally, and the use of gelatin for capsules and cochineal for coloring, the Eclectic school has gone no farther into animal therapy than to employ quite generally, cantharis, spongia, and tela occasionally, and ox-gall and musk very rarely.

The *Eclectic Medical Gleaner* does not hesitate to go on record as above, and it is fine to read such from a medical source when all the rest have accepted the new idea of vaccines with such childish faith. In these columns has appeared the homœopathic claim to their origin.

IMMUNITY AMONG THE CHINESE

Notes from China by the correspondent of the *Lancet* has this:

In spite of the lack of corporal hygiene, and notwithstanding the rank conditions of overcrowding under which the natives live, epidemics are very rare and never of great extent. Cholera, bacillary and amœbic dysenteries, and enteric fever have never been observed, although the well waters are dirty and contaminated from their close proximity to sewers and middens. During the past year there have been sporadic cases of diphtheria, mumps, chickenpox and smallpox. There is little enthusiasm among the people for vaccination, inoculation, with pus from the pustules of a benign case being generally preferred. Some headway has, however, been made with vaccination of calf lymph (from Shanghai Municipal Laboratory) by several French-trained native doctors.

The only explanation is immunity by reason of centuries of environment, also that the

Chinese seldom, if ever, drink water. Tea is the beverage, and made from boiling water.

Is it any wonder that there is "little enthusiasm" for vaccination against smallpox in the almost entire absence of the disease?

The following, from the *Lancet*, May 18th, is presented entire as a good example of anatomical reasoning and to show that original thinking still exists:

INTENSE NEURALGIC PAIN IN THE ARMS AFTER CHILDBIRTH

This note is published in the hope that the facts it records may prove helpful to some practitioner. The writer is aware that in publishing it he is trespassing in fields with which he has no direct professional concern, and for this he apologises.

Eighteen months ago (autumn, 1910) the writer was asked by a medical colleague, Dr. A, if he could suggest any antomical explanation for the occurrence of intense neuralgic pains in the arms after childbirth. Dr. A said that he had met with the condition once or twice in the course of practice, and that his wife, who had given birth to an unusually large boy baby some six weeks previously, was suffering so severely as to be incapacitated from nursing the child. Three, if not four, medical men had seen the patient, and the pains were as bad as ever. The treatment adopted had included the application of belladonna and chloroform liniments, friction with aconite ointment, the placing of first one arm and then the other in a sling, and the confining of the patient to bed. The liniments and ointments had done no good; the slings had given temporary relief; the confinement to bed was only useful so long as the patient refrained from sitting up and from holding the bady.

Mrs. A, aged 30, is well known to the writer, although he had not seen her for some weeks prior to the time at which her husband spoke to him about her condition. That evening he saw her, and she informed him that the pain "shot" all over the arms, but was most intense over the lower part of the deltoid and the middle third of the biceps; it was aggravated by standing or on attempting to lift a weight—for example, the baby. Sleep, she said, was not much interfered with, as the pain passed off in about an hour after lying down.

In the course of conversation the following points were noticed: (1) The shoulders looked much less square than before the pregnancy; (2) the dress worn, which fitted accurately when it was new, some time early in the pregnancy, was wrinkled above the iliac crests, and at the back was rather dragged towards the axillæ; (3) when sitting Mrs. A selected an armchair and sat leaning forward with her forearms resting on the arms of the chair and her shoulders pushed up towards her ears—a position not at all customary for her; (4) after sitting in that position for some time she became markedly brighter and appeared to be relieved of the dragging pain.

The mental process leading up to the diagnosis was noted as follows:—

1. The area of maximum intensity of pain is the area of cutaneous distribution of the fifth cervical segments, and is not a single nerve area.

2. The pain is evidently of mechanical origin, because it is entirely relieved when the arms are supported or when the patient lies down, and is aggravated when the patient stands up or attempts to carry a weight upon her arms.

3. The shoulder girdle is held in position by the clavicle, the muscles, and the convexity of the thoracic wall.

4. During the later weeks of pregnancy the chest wall is dragged up by the diaphragm, which elevates the ribs into what is, in extreme cases, practically the full inspiratory position, with the result that the shoulder is raised. After childbirth the diaphragm descends and the ribs follow it down. Deprived of support the shoulders also sink. If the child be a large one these descents are to levels lower than those at which the parts lay before the pregnancy—a result of the relaxation of the abdominal musculature and the consequent descent of the abdominal viscera.

5. In the case of Mrs. A the shoulders are normally unusually square (male type). This probably due to her athletic training as a girl at school. Her abdominal musculature must also, to judge by the physical feats of which she was capable, have been unusually well developed. During pregnancy the abdominal muscles could not possibly have been used as they were accustomed to be used; therefore they practically certainly lost much of their development. This, coupled with the facts dependent upon the size of the child, must have allowed an unusually great descent of the chest wall, and consequently of the shoulders, to occur after delivery.

6. When the shoulder girdle descends it travels round the arc of a circle of which the centre is at the sterno-clavicular articulation, and the radius the length of the clavicle. The nerves, however, must descend upon the arcs of circles, of which the centres are at the transverse processes of their corresponding vertebrae, and the radii the lengths from these points to the points at which the highest branches are given off to the muscles of the arm. In cases of marked descent of the shoulder girdle it is, therefore, a mechanical necessity that the nerves, more especially the fifth, are pulled upon, and pressed against the transverse processes of their own vertebrae. Such a condition of tension or pressure will be aggravated by the assumption of the erect attitude and by attempting to lift a weight, and will be diminished by supporting the arms or on lying down.

The diagnosis, therefore, was (1) that the pain in Mrs. A's arms was due to pressure of the fifth cervical nerves against the transverse processes of the fifth cervical vertebra; (2) that this was the result of a descent of the shoulder girdle consequent upon the descent of the ribs; (3) that the ribs descended because they lost the support of the diaphragm which followed the viscera down when they gravitated toward the pelvis after childbirth; and (4) that the viscera descended further than is usual because of the atrophy which was superadded to the inevitable relaxation of the abdominal muscles.

The immediate treatment suggested was to force up the diaphragm by allowing the weight of the abdominal viscera to come against it when the head and shoulders were depressed and the pelvis elevated, and then to apply some abdominal support (a folded towel placed inside the ordinary corset was used) before assuming the erect attitude. The ultimate treatment was to re-develop the abdominal muscles.

Asked about the condition at Easter, 1912—i. e., 18 months after the commencement of treatment—Mrs. A reported that the forcing and holding up of the diaphragm had from the very first entirely abolished the pain. Last summer rowing and tennis had redeveloped the muscles, and all special precautions were abandoned. Once or twice this spring, when no efficient abdominal support has been applied and long days' tramping have been indulged in, there has been some pain in the arms in the afternoons when the abdominal muscles were getting tired, but this has at once disappeared on Mrs. A putting on a pair of corsets. The results seem to justify the diagnosis.—

A. C. Geddes, M. D., Edin.

Edin.

Correspondence

A MAGNIFICENT MEET—BUT

Everything was lovely at Detroit and the program committee certainly did itself proud in presenting a feast of good things osteopathic; and perhaps I should not murmur, for a number of things which I have been reviled for advocating in times past were given prominent places on the program and there were a number of excellent demonstrations, *but*—it seemed that the committee in a measure lost sight of two small points, namely, who we are and what we were there for.

First, We are in our chosen field a body of physically active laborers, rather than university students accustomed to long hours of didactic work. It is physically impossible for us to suddenly cease our activity and sit for some days in more or less exciting surroundings, meeting old classmates, etc., and hold our attention to lengthy scientific papers. We must have the stimulus of change and activity to hold the attention.

Second, We spent our time and money in going to Detroit to get what we could not possibly get at home, namely, the interchange of large experiences and opinions on points of every day importance and the solution of problems which were too much for us alone. This we were absolutely denied, except in the short hour on pediatrics so admirably conducted by Dr. Sims, after most were tired and gone, but which was probably enjoyed by those who remained more than any other hour of the meeting.

The labors of the committee must have been arduous. I know the trials of a program committee and can guess at the number of unanswered letters they sent out and do not wish to belittle the fine features of the program; but if those who read papers that we could have read at home had only given us the epilogue, omitting the prologue and the logue itself, condensing their remarks without apology to the conclusions and practical points, leaving the body of the paper for publication later, and all numbers other than demonstrations, stereopticon work, etc., had been limited to, say 10 or 15 minutes at most, and the balance of the time had been given to the floor, we should have had the greatest meeting in history. As it was, many very questionable statements from the platform had to pass unchallenged and many valuable points unemphasized and unremembered.

For instance, it so happened that three different papers on different days and from entirely different standpoints discussed the border line between surgical and non-surgical tonsils and adenoids. The author of any of these may not have heard either of the others and certainly made no mention of it. Brought together, these would have been most interesting and instructive. Separately they were all largely lost.

A man said of a magazine, it is moulded and finished, more elaborate, more elegant, more dignified and more scientific, but it has passed the stage of struggle for existence and lacks the original enthusiasm and is therefore not as good as when it was a five cent periodical. Let us guard most diligently that the same thing may not truthfully be said of our association and of our profession.

ARTHUR STILL CRAIG, D. O.

KANSAS CITY, MO.

[EDITOR'S NOTE.—A program of the character Dr. Craig suggests would be infinitely easier to prepare and easier to arrange and carry out; and, no doubt, would be more enjoyable as a recreation for hot weather; but would it satisfy the profession's ideals of what its meetings should be? One such meeting occasionally, or more time left for round tables and general discussions might be desirable. This, however, is not a substitute for the studied address and carefully prepared lecture, though these might be read only in outline, discussed, and printed later. The Program Committe will consider the suggestion.]

THE SIGNS OF THE TIMES

What means the persistent medical tone that was heard in various papers on the program at the recent A. O. A. Annual Meeting? What means the repeated rumors that the osteopathic schools are flirting with medical topics and indeed with the medical degree?

Not nearly so bad a thing as we feared, I believe.

Dr. Still, some ten years ago expressed a feeling that in part prophesied our present state, when he said we had been retiring and apologetic long enough, and that the time had come to change all of that and be aggressive and dominant. The profession has been trying to realize that prophesy ever since. At the present we are in a half-way position; we show a strong mixture of timidity and arrogance in the face of our enemies, of self deprecation on the one hand and of belligerance on the other. We still feel the inclination to apologize for our existence and explain ourselves. We have been slowly finding that we need not do so, that we can be as good as the other man at his own specialties. We have been proving this to ourselves and to the world; we have been learning to "speak with our enemies in the gates."

For a few years more we will probably continue to flirt with these subjects and with these

methods, trying them out. The law of development does not vary and will carry us into that stage; but the inherent power of Dr. Still's contribution to the world's knowledge is undiminished and will carry us through that stage. We will emerge so much stronger. Those osteopathic schools which, for financial reasons, or from psychological pressure, have yielded at various points along the line, are now finding, or will soon find, that in so yielding they have given up their strongest hold upon the public, their distinctive appeal to prospective students, and have alienated, to some degree, the support of the profession—have in fact undone the very thing they were trying to do. This also was a stage to be expected, to be condoned, and when past to be forgotten. The rock-bottom simplicity, the pronounced successes, the fundamental nature—in short, the truth of the osteopathic principles, or rather of the osteopathic fact, for the much talked about principles are merely a simple fact—these things will have their own way with us in time. They will have their own way with the world and we shal' be the instrument thereof.

Already evidence of the change is showing. Having dallied with the medical erudition and circumstances long enough to have grown familiar with it, we have developed a contempt for it. There are many who are easily contemptuous, whereas they had been uneasily belligerent. Amplification of means no longer obscures to us the lack of result. Psychological impressiveness no longer out-weighs the outcome in fact. The steady pressure born of practical results is everywhere showing itself in small streams, soon to unite into a great current, which should carry us all back to simple and genuine osteopathy.

E. E. TUCKER, D. O.

NEW YORK.

NOTES FROM GEORGIA

Georgia has had another legislative contest. This time it was defensive to maintain our independence which we got some years ago. The allopaths introduced a bill for a composite board with the following representation: One osteopath, one homeopath, two eclectics and five allopaths. We opposed it very positively in a consultation with them before it was introduced and the following day two of the allopaths called at my office and said they thought of leaving us off and allow us to keep our board. So we had got what we asked for, and told them that was all we wanted.

They went on with the bill, but allowed the chiropractics to come in with an amendment exempting them from any examination whatever. Their lawyer slipped this into the bill when they did not expect it and it was a surprise to the allopaths. I then took the matter up with the allopaths to help them to have this amendment rescinded, but after consultation among themselves, they concluded that they would get the bill through as it was, they told me, as they were afraid that if they undertook to amend it, the whole thing might fail and they promised me they would amend it next year.

I made up my mind that we would kill the whole affair then, and we went to work to kill it and we *slew it right*. We will have another fight next year. We joined with the eclectics and we whipped them right.

By the way, the eclectic college located here in Atlanta is the oldest medical college of this state, being seventy-three years old. They have concluded to treat the osteopaths right. They will put a three year graduate of osteopathy into their senior class and graduate him in one year and a two year osteopath they will graduate into an M. D. in two years. Any osteopath desiring to take his M. D. degree has a great opportunity here this year. This rule holds good for this year at least. We have also an allopath school here who will give any graduate osteopath two years' credit. Will be 'glad to answer any questions than any interested osteopath may ask.

Could not get to the A. O. A. this year on account of this bill.

M. C. HARDIN, D. O.

ATLANTA, GA.

[Referring to the last paragraph of Dr. Hardin's letter, the recognition by these medical colleges of the work of the osteopathic institutions is significant. For this reason only it is published here, as the attitude of the JOURNAL on the value of the M. D. degree to the osteopathic physician is well known.—EDITOR OF JOURNAL.]

THE ADHERED PREPUCE AGAIN

Just a word concerning my contribution to the April JOURNAL, under the title "Adhered Prepuce," and the reply thereto, in the July issue, by Dr. Palmer.

I have found an answer to my own query. Dr. Keyes, in the *Reference Handbook of the Medical Sciences*, says: "Phimosis with adhesion of the prepuce to the glans penis is the normal condition of every male child and if not corrected leads to permanent cicatricial phimosis."

I believe Dr. Palmer to be in error in some statements which he makes. I do not understand that the smegma comes from the meatus. Gould says, "Smegma—The caseous substance secreted by the follicles of the prepuce." Gray's Anatomy states that "upon the corona glandis are numerous small glands which secrete a

sebaceous matter of very peculiar odor and which probably contains casein and becomes easily decomposed." It certainly does not come from the meatus, because, in breaking up the adhesions, even in the new-born, masses of smegma may be found in the furrow back of the corona. Decomposition of this accumulated secretion is evidently the cause of the frequent inflammatory attacks so common in these cases.

The hood of the clitoris, and not the hymen, is the female analogue of the male prepuce; and we know what reflexes may result from a "hooded clitoris."

These adhesions, in most cases, are too firm to be broken up by coition. I remember assisting in a case where the condtion had been allowed to continue to manhood, and there were, apparently, no adhesions to separate, but the prepuce seemed to have fused with the glans, and had to be cut away as you would trim the surface from a piece of beefsteak.

Further evidence of the pathology of these cases lies in the fact that so many nervous disorders are traceable to this as a causative factor, which do not respond to treatment until the cause is removed.

In contributing the original article, I assumed that adhesion of the prepuce was recognized by all to be a pathological state, and that the indication for its correction was undisputed. My object was simply to call attention to the wisdom of correcting it immediately after the birth of the child.

CHEYENNE, WYO. F. I. FURRY, D. O.

COMMENDS SYMPOSIUM ON TECHNIQUE

The August A. O. A. JOURNAL is before me, and the one thing that has especially attracted my attention is the Technique Symposium. The several splendid answers you received tell a wonderful story to my mind. In the first place, all depended upon osteopathy for their treatment of the case. Did you notice specially that psychic treatment was mentioned but once and that in a very sensible manner? Did you also notice that "Violet" and other sorts of rays were woefully missing? Also that the vibrator was entirely relegated to the scrap heap in these letters?

For my part, I consider it a good omen and I also think your idea of the Symposium was good. There is no doubt that, in the case cited, the osteopathic lesions are entirely responsible for the "giving away" of the patient, though we will all admit that the inherent forces of nature should be utilized in giving back to this body its former health. Abdominal exercises, deep breathing, attention to diet, will all, if systematically practiced, aid nature to strengthen herself, as the lesions are gradually corrected. I am convinced that an individual, disregarding the call of the muscles for exercise, may bring upon himself non climination and actual disturbance in certain organs of the body.

It seems to me that one of the hardest things to overcome is a sluggishness of the digestive tract, when your advice of abdominal exercise, to overcome a flaccid abdominal wall, is not heeded. I was interested in several of the reports; I believe osteopathy is growing and broadening.

Your article, "What of the Night," was exactly correct and to the point. I would like to see it printed in a pamphlet and sent to all non-members of the A. O. A. I think it put it up to them about right and might make many of them see the error of their ways.

THEO. PAUL, D. O.

[Other articles on the same subject will be presented in an early issue.—EDITOR.]

Among the State Societies

COLORADO.—The Denver Association held its monthly meeting September 7th. The chief feature of the program was paper and demonstration, "Technique of the Dorsal Region," by J. D. Glover. Monthly meetings will be held through the winter and spring.

CONNECTICUT.—The state board of Osteopathic Registration and Examination held a meeting September 3rd in Hartford, when three candidates for license were examined.

ILLINOIS.—The Chicago Osteopathic Association held its monthly meeting at LaSalle Hotel, September 5th. Fred Bischoff is president and F. E. Dayton, Secretary. F. E. Dayton presented a clinic, giving history of case, etc., from the Bethesda Mission Clinic. H. M. Maltby demonstrated the application of "Unna's Dressing for Varicose Veins and Ulcers." His discussion of the comparative treatment of this dressing with surgery was appreciated. Dr. Maltby further gave demonstrations of the application of the "Oschner Method of Strapping to Correct Club Foot." A vote of thanks was tendered him by the society.

Dr. Grace Smith reported for the Program Committee, and J. H. Sullivan for the Legislative Committee. On motion, the president was instructed to confer with the president of the state organization in regard to sending a delegate to the International Congress of Hygiene and Demography to be held at Washington September 25-28. Much interest is manifest in the first meeting of the season, more than fifty being present.

F. E. DAYTON, D. O., *Secretary.*

The State and City organization have appointed Fred W. Gage, Chicago, as their dele-

gate to the fiftieth International Congress of Hygiene and Demography above referred to. This is the first of these great world congresses to be held in America. The last one was held in Berlin in 1907.

It is estimated that this congress will bring together about 3,000 of the leading sanitarians of the world and delegates from more than thirty countries will be present. A National Health Exposition will be held in connection with it which will bring the attention of the people of the country to the results of the crusade in behalf of public health which has been going on in the country for the past ten years. The profession in Illinois is to be congratulated on its action in sending the delegate. Other osteopathic organizations should take similar steps.

NEBRASKA.—The Nebraska Osteopathic Association held its thirteenth annual meeting in Omaha, September 11th and 12th. The program as published was carried out and an interesting and instructive meeting was held.

Officers were elected for the year as follows: President, E. M. Cramb, Lincoln; Vice-President, C. K. Struble, Hastings; Treasurer, Lulu L. Cramb, Fairbury (reelected); Secretary, C. B. Atzen, Omaha (reelected). The organization nominated to the Governor for the position on the State Board of Examiners caused by expiration of term of Dr. Atzen, the following: A. T. Hunt, C. B. Atzen and C. K. Struble.

The meeting adopted the plan advocated by the A. O. A. for a close co-operation between the state organization and the national body in the matter of legislation. The meeting further adopted the three propositions advocated in the letter to the state secretaries by the officers of the National Association of State Secretaries. The state association took favorable action looking to consolidating the state organization with the A. O. A. in accord with the recently adopted By-law of the national organization, but it referred definite and final action until it was more thoroughly canvassed and better understood. The state organization revised its Constitution to conform to that of the A. O. A.

The next place of meeting will be Grand Junction. Almost fifty osteopathic physicians were in attendance.

C. B. ATZEN, D. O., *Secretary.*

NEW YORK.—The fifteenth annual meeting of the New York Society will be held in Syracuse the last of October. C. D. Berry, of Rochester, is president of the state organization and C. D. Clapp, of Utica, is president and D. F. Cady, of Syracuse, is secretary of the Central New York Society, which will be the hosts of the state society at that time. An attractive program is being arranged.

NORTH CAROLINA.—The North Carolina Society held its annual session August 31st at Raleigh, A. H. Zealey, president, presiding. Very interesting clinics, on Anterior Poliomyelitis, Epilepsy, Movable Kidney, Locomotor Ataxia and Gynecology, were presented by H. W. Glascock and A. H. Zealey. The President's address was timely and much appreciated. S. W. Tucker gave an interesting demonstration of "Technique of Lateral Curvature." W. B. Meacham discussed "Serum Therapy from the Osteopathic Standpoint," and showed the fallacy of this method of treatment. H. W. Glascock discussed "Laboratory Diagnosis," and emphasized the general need of this work among physicians of all schools of practice. A. R. Tucker discussed "Appendicitis," and M. J. Carson "Tyhoid Fever." The latter drew upon an experience of over two hundred cases without a death.

Officers were elected as follows: President, A. H. Zealey, Goldsboro; Vice-President, A. R. Tucker, Raleigh; Secretary-Treasurer, M. J. Carson, Rocky Mount; Delegate to next A. O. A. meeting, W. B. Meacham.

The osteopathic state board of examiners recently held examinations and examined four candidates for license to practice in the state.

OHIO.—The Miami Valley Socity held its first fall meeting September 12th with W. A. Gravatt, Dayton. The meeting was given over largely to receiving the reports of the committees appointed at the June meeting. Plans were formulated for conducting the society along progressive lines in publicity, and recognition of osteopathic physicians in public institutions, such as schools, hospitals, etc.

If suitable arrangements can be made, the Dayton Society wishes to hold quarterly joint meetings with the organizations of Cincinnati and Columbus. The attendance at this meeting was gratifying, several who have recently located in this section of the state being present affiliated with the meeting, and the outlook for a vigorous campaign for advancing osteopathy in the section is inaugurated.

W. A. GRAVETT, D. O., *Secretary.*

OREGON.—C. T. Samuels, of Baker City, has recently been appointed examiner for both the Eagles and Forresters of America.

Eva S. Walker, 92 E. Twenty-seventh Street, North Portland, recently lost her husband, after a lingering illness.

E. W. Sackett and family, of Springfield, O., were recent visitors in Portland.

LeRoy Smith, Selling Bldg., Portland, has transferred his office to F. J. Hodgeman, wishing to retire from practice for a time.

Drs. Edwin Allison and Frances Gault were

married in Los Angeles recently and will make their home in Brownsville, Oregon, where Dr. Allison has been in practice for the past year.

PENNSYLVANIA.—The Pennsylvania Society has recently issued its Annual Bulletin of ten well printed and well filled pages. The articles for the most part are those presented before the recent annual meetings of the state organization. Several other interesting state communications are presented. E. M. Downing, President of the state organization, makes an earnest appeal for a closer affiliation and cooperation on the part of his membership with the national body. The announcement is further made that the Governor, in accordance with the recent unanimous action of the society, has appointed O. J. Snyder to succeed himself as a member of the Board of Osteopathic Examiners. The Board has re-organized for the year, electing O. J. Snyder, President; V. A. Hook, Secretary; H. M. Goehring, Treasurer. The announcement is further made that Earle S. Willard has secured the majority of stock of the Philadelphia College and Infirmary of Osteopathy. It is understood, however, that there will be little or no change in the teaching force for the coming year at least. Largely through the efforts of O. J. Snyder, the proper state authority has rendered the opinion whereby teachers' health certificates, signed by osteopathic physicians, will be accepted by superintendents.

RHODE ISLAND.—The annual meeting of the Rhode Island Society will be held in Providence October 12th. W. B. Shepard, Providence, is president, and F. W. Wetmore, Pawtucket, is secretary.

WASHINGTON.—The osteopathic physicians of Eastern Washington, according to press reparts, have expressed themselves as opposing the decision of the State Board of Health to lift the smallpox quarantine. It is understood that this will mean that the Board will follow this with the demand for compulsory vaccination, which seems to indicate the chief ground for the action of the osteopathic singly and in their organization.

CANADA.—The twelfth annual meeting of the Ontario Association was held in Toronto, September 2nd. The following program was presented: "Demonstration of Exercises Accessory to Treatment," William S. Nicholl, Philadelphia; "Polyarthritis," R. J. Smith, Owen Sound, Ontario; "Mechanism Resistance of Infectous and Contagious Diseases," C. W. Proctor, Buffalo; "Symposium of Technique," First Dorsal, L. H. Bell, Chatham; Second Dorsal, Hubert Pocock, Toronto; Eleventh Dorsal, M. H. Pettypiece, Ottawa; First Rib, C. E. Amsden, Toronto; Fifth Lumbar, M. H. Good, Hamilton; Rotation between Fourth and Fifth Dorsals, H. E. Sinden, Hamilton.

This followed by an open discussion of publicity. At the business session, legislation and publicity were the chief subjects of discussion. It is proposed to introduce a bill before the next session of the legislature, and as it is to be a government measure, its passage seems reasonably certain. The report of the Publicity Committee, E. D. Heist, Berlin; E. A. Detwiler, London, and A. G. Walmsley, Peterboro, was discussed. The public lecture method seemed to meet with general favor and the hope was expersed that soon a series of illustrated lectures on osteopathy might be given in various parts of the province.

Officers were re-elected for year as follows: President, J. S. Bach, Toronto; Vice-President, J. M. Kerr, Toronto; Secretary, E. D. Heist, Berlin; Assistant Secretary, F. P. Millard, Toronto; Treasurer, J. N. MacRae, Toronto; Reporter, A. G. Walmsley, Peterboro.

The Association membership is increasing considerably from year to year. Time and place of the spring meeting announced later.

NATIONAL ASSOCIATION OF STATE SECRETARIES

This organization was formed, the representatives of the following states being present at the recent annual meeting of the A. O. A. at Detroit:

California, Colorado, Florida, Indiana, Illinois, Kansas, Louisana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, Nebraska, New York, Ohio, Ontario, South Carolina, Texas, Utah, Wisconsin.

Temporary organization was formed by selecting E. D. Heist, Ontario, Chairman, and E. J. Elton, Milwaukee, Secretary. Plans were discussed by the leading secretaries of the state organizations present and the universal opinion being that the organization was much needed, both by the national organization and by the states, as an exchange of ideas, and having the hearty approval of the Board of Trustees of the A. O. A., a permanent organization was formed.

Among some of the useful points brought out might be mentioned the Loose Leaf Record Membership Book, manufactured by John C. Moore Co., 65 Stone Street, New York. Sample leaves may be had on writing for same. Dr. Kottler urged the keeping of an accurate and up-to-the-minute Directory by each state secretary for which purpose the above Loose Leaf Book is very helpful. E. H. Cosner, of Ohio, pointed out the desirability of having the Directory in a size convenient to keep in the pocket, stating that it had been found very helpful in

the increasing demands for referring traveling people from one osteopathic physician to another.

A resolution adopted by the Board of Trustees (printed in the last issue of the JOURNAL, page 1302) was read to the organization. The committee on organization reported the following as a tentative constitution and as such the same was unanimously adopted:

Art. 1. This organization shall be known as the National Association of State Secretaries.

Art. 2. The purpose of this Association shall be to unify the activities of the State Associations with the A. O. A., to educate the various Secretaries to a higher state of efficiency; to promote the science of Osteopathy throughout the world.

Art. 3. The membership of this Association shall consist of the Secretaries of the various State and similar associations.

Art. 4. The officers of this Association shall consist of a Chairman, Vice-Chairman, and a Secretary-Treasurer.

Art. 5. Duties of Officers:

Sec. 1. The Chairman shall preside at all meetings of the Association and shall perform such other duties as usually belong to that office.

Sec. 2. The Vice-Chairman shall perform the duties of the Chairman in the absence of the latter.

Sec. 3. The Secretary-Treasurer shall keep a record of the transactions of the meetings of the Association; shall notify appointees of committees and perform such other duties as usually belong to this office.

The following officers were elected for the coming year: Chairman, E. D. Heist, Berlin, Ontario; Vice-Chairman, H. L. Chiles, Orange, N. J.; Secretary-Treasurer, E. J. Elton, Milwaukee, Wis.

Dr. A. P. Kottler suggested that the following topics be taken for consideration during the coming year: State Certificate of Membership; Punctuality in Correspondence; Directory; Membership; Censorship; Pooling of Railroad Fares of Annual Meeting. At the suggestion of Dr. Effie E. York, the fact was brought out that California, Illinois, Indiana, Kansas and Wisconsin, and perhaps other states, had arranged for paying of, at least, a part of the expense of their secretary in attending this conference. Dr. Montague of Indiana recommend that this body recommend to the various state organizations that each of them plan to send its secretary to the annual meetings of the National Association of State Secretaries. The discussion which followed showed that there was a great difference in the compensation made to the secretary by the several state organizations. It was recognized that this was a matter for each state to adjust and where state organizations are large with consequent heavy duties, it would seem but just and commensurate with such duties to place some compensation on the work of the seretary's office.

It was suggested that an official post card be adopted; that every secretary watch for items published in the daily press and magazines showing the growth and progress of the profession and make proper use of the same; and that efforts be made by this body to organize state societies in every state where no organization now exists.

E. J. ELTON, D. O., *Secretary.*

Notes and Personals

James S. Bach, President Ontario Osteopathic Society and recent Trustee of A. O. A., who was prevented from attending the Detroit meeting on account of the illness of his wife, reports that she has now returned from the hospital, following a serious operation, and that the indications are for a complete and speedy recovery.

Ethel L. Burner of Bloomington, Ill., has had charge of her brother in a serious case of typhoid. She has had the help of F. A. Turfler of Indiana, and satisfactory progress is reported, although several distressing complications existed.

Henry Carson, Jr., of Ridgefield, Conn., was recently elected President of the Connecticut Association, instead of "Carlson, of Litchfield," as recent reports had it.

Murray Graves has opened offices in Symes Bldg., Denver, Colorado, after a practice of twelve years in Monroe, Louisana.

Frank R. Heine, recently of Pittsburg, Pa., is spending the year at Kirksville, Missouri, where he is taking post graduate work, giving especial attention to orthopedics and laboratory technique.

P. K. Norman, Central Bank Bldg., Memphis, Tenn., has associated with him in practice J. H. Harrison, of the June, 1912, class of the A. S. O.

Ella X. Quinn, who was painfully injured in an automobile accident in Detroit following the A. O. A. meeting, has now recovered and has resumed her practice at St. Augustine, Florida.

G. H. Snow, of Kalamazoo, who was forced to be absent from the recent Detroit meeting on account of sickness, has after spending a number of weeks in Minnesota, returned to his home to resume practice.

Edwin W. Tate, Newark, N. J., after spending the summer with his family in the woods

of Maine, has now returned to his practice.

C. C. Teall, who returned from a trip from the Orient encircling the globe, reached New York June 26th, and has spent the summer at Bethlehem, N. H.

Ernest E. Tucker, formerly in the Astor Court Bldg., New York, is now associated in offices with Dr. St. George Fechtig, 35 Madison Avenue, New York City.

CASH FOR ACCEPTABLE ARTICLES

The Board of Trustees will pay to the writers of articles accepted by the Bureau of Publicity, $50 in cash. $35 will be paid for the article deemed most acceptable, $10 for the second, and $5 for the third choice, provided these articles can be used by the Bureau. All articles not accepted will be returned to the writer.

The subject is "Osteopathy, the Science of Healing by Adjustment." Articles of between three and four thousand words are most desirable. These articles are wanted for popular distribution and should be so written as to convey proper conception of the osteopathic principle and technique to those not familiar with the system of practice.

It is desirable that these articles be in the hands of the Publicity Bureau by December 1st next. This offer is in no wise connected with the regular prize essay contest, which will be announced in a future issue.

LARGE NEW CLASSES

The JOURNAL has received announcements from two of the schools which are particularly encouraging. George M. Laughlin, dean of the A. S. O., announces that the indications are that their new class will number about 200, which is one of the largest classes since they have been on the three-year basis.

Dr. Louisa Burns, of the Pacific College at Los Angeles, writes that their class appears to be the largest in the history of the school and the character of the men and women making up the class is of the highest order.

In the next issue the JOURNAL hopes to give the registration in the other schools, feeling assured that the entire profession will be greatly encouraged by reports of large classes in our several colleges.

NEW REBMAN BOOKS

Messrs. Rebman Company of New York beg to announce now ready:

"Surgery of the Brain," Vol. II, by Fedor Krause, M. D., of Berlin;

"Ophthalmology," Vol. II, by Roemer, M. D.;

On the press:

"Surgery of the Brain and Spinal Cord," Vol. III, by Fedor Krause, M. D.;

"The Diseases of the Oral Cavities," one volume, by Zinsser, M. D. 51 colored illustrations (four color process) and 22 (one of which is colored) illustrations of the teeth, spirochetae and trepenomata.

Mr. Rebman has carefully prepared and printed a most interesting pamphlet, showing the difference between hospital facilities for study in this country, as compared with those of Europe, and suggests therein how each physician can best overcome this handicap. He will send you a copy if you write for it. The editor particularly calls your attention to the extension of the special offer on the charts found in their advertisement in this issue which he secured for the JOURNAL readers.

APPLETON'S NEW BOOKS

D. Appleton & Co. have recently issued three new volumes which will be of particular interest to the osteopathic profession: The eighth revision of Osler's "Principles and Practice of Medicine," a splendidly put-up book of about 1,250 pages; Williams' "Obstetrics" is a book of the same style, profusely illustrated in both black and colors, containing practically 1,000 pages; Walsh's "Psychotherapy," a book of unusual interest by one of the best known students of Nervous Diseases in the country. This book contains about 800 pages and in addition to the treatment of these diseases the discussions of the subjects in general are of unusual interest and value. Sample pages of these may be had by writing to the publishers in New York City.

BACK NUMBERS OF THE "JOURNAL" WANTED

In order to complete the files for several members, copies of Number 11 of both Volumes II and III are wanted. Subscribers having these numbers and willing to dispose of them, please write the JOURNAL.

FOR RENT.—Suite of rooms, ground floor, furnace heat, low rent. Occupied by lady osteopath for past seven years. Fine city. Address C. R. OSBORN, 42 E. Chicago Street, Coldwater, Michigan.

BORN

To Drs. J. W. and Clara M. Barker, Eureka, Illinois, August 22, a son, William Lysle.

To Drs. Howard T. and Nell Cutler Crawford, of Lexington, Mass., September 5th, a girl, Katharyn Winifred.

To. Dr. and Mrs. W. H. Jones, Marlboro, Mass., June 18th, a girl, Eleanor.

DIED

At Ithaca, New York, August 31st, child of Dr. and Mrs. J. L. Bingham, age two and one-half years. The complications begun with tonsillitis and abscess of the middle ear, followed by inflammatory rheumatism, endocarditis, nephritis and hepatitis, in which the liver became of enormous size, extending down to the pelvis.

At Waitsburg, Washington, August 19th, Rev. W. H. Harris, age fifty-two, father of Dr. L. A. Harris, Kalispell, Montana.

At Chico, California, August 5th, Edward L. Moore, age thirty, brother of Dr. Coyt Moore, Baton Rouge, La.

RESOLUTIONS OF RESPECT

At a meeting of the Maine Osteopathic Association, a committee, consisting of Drs. Mary Warren Day, Florence A. Covey and A. E. Chittenden, was appointed to draft resolutions on the death of Dr. Viola D. Howe. The committee has formulated such resolutions, speaking of Dr. Howe in the highest terms for both her skill as a physician, her loyalty to the profession and to her fellow physicians.

APPLICATIONS FOR MEMBERSHIP.

CALIFORNIA

Wakefield, Wm. H. (A), Oakland, Calif.
Hook, Edith L. (P), San Diego, Calif.

MONTANA

Adelbert, F. W. (La.), Somers.

NORTH CAROLINA

Grainger, C. H., Winston.

PENNSYLVANIA

Cox, Robert C. (A), Philadelphia.

WISCONSIN

Brockway, Arthur W. (S), Waukesha.

CANADA

Lewis, Edith J. (C), Hamilton, Ont.

ENGLAND

Sutcliffe, Dora (A), Southport.

CHANGES OF ADDRESSES.

Adams, W. J., from Oxnard to Venture, Calif.

Brinkerhoff, Van Wyck, from Upper Sandusky to 1040 Ohio Bldg., Toledo, Ohio.

Crum, J. W., from Bartow to Fort Myers, Fla.

Dymond, E. C., from Des Moines, Ia., to 3 Hyde Block, Pierre, So. Dak.

Gilmore, S. J., from Kirksville, Mo., to Sandersville, Ga.

Graves, Murray, from Monroe, La., to Symes Bldg., Denver, Colo.

Grow, Walter S., from Hymera to Danville, Ind.

Higginbotham, M. W., from Rogers to Bentonville, Ark.

Hill, F. Carleton, from Homer to Harvard, Ill.

Hilton, Bertha, from Denver to Silt, Colo.

Howells, Mary S., from Coldwater to 1st Nat. Bk. Bldg., Allegan, Mich.

Hunting, Albert, from 525 Ashland Blvd. to 367 E. 60th St., Chicago, Ill.

Hutchinson, Wm. W., from 240 So. Figueroa to 1282 West 23rd St., Los Angeles, Calif.

Ireland, E. P., from Norfolk to Kearney, Nebr.

Jacobs, W. K., from Freeport, Ill., to Berlin, Ont., (Box 665.)

Keyes, Leslie S., from Medical Blk. to Andrus Bldg., Minneapolis, Minn.

King, Helen, from Boston to 516 Harvard St., Brookline, Mass.

Laird, Jennie Smith, from 2324 Harney St. to 2513 Farnum St., Omaha, Nebr.

Miller, Frank, from 438 Broadway to 512 Broadway, Camden, N. J.

Moore, G. W., Jr., from Mt. Lake Park, Md., to Moore, Pa

Nelson, Harriet A., from Medical Blk. to 508 Essex Block, Minneapolis, Minn.

Osborn, Harry C., from Salisbury, Md., to 357 S. Hope St., Los Angeles, Cal.

Pratt, Frank P., from 5 Clairmount Garden, Glasgow, Scot., to 255 Bath St., Glasgow, Scotland.

Rogers, Drs. Alfred W. & Effie L., from 12 Hemenway St. to 1091 Boylston St., Boston, Mass.

Sandus, E. E., from Chicago, Ill., to East Main St., Van Wert, O.

Schoettle, Mary Teresa, from Portland to 678 N. Cottage St., Salem, Ore.

E. M. Spates has opened offices in the California Bldg., Los Angeles, Calif.

Talmadge, Kathryn, from 1126 16th St. to Stoneleigh Court, Washington, D. C.

Tinges, Geo. H., from 22 So. 43rd St. to 5817 Willows Ave., West Philadelphia, Pa.

Tucker, A. R., from Durham to Masonic Temple, Raleigh, N. C.

Tucker, Ernest E., from Astor Court Bldg. to 35 Madison Ave., New York City.

Van Vleck, A. E., from Lawton, Mich., to 191 Broadway, Long Branch, N. J.

Wright, Peter J., from 33 E. River St. to 1144 River St., Hyde Park, Mass.

DIRECTORY OF STATE SOCIETIES.

ARKANSAS—(February): Pres., E. H. Laughlin, Bentonville; Sec'y, W. W. Higginbotham, Little Rock.

CALIFORNIA—(June): Pres., L. R. Daniels, Forum Bldg., Sacramento; Sec'y, Effie E. York, 1479 Geary Street, San Francisco.

COLORADO—(January): Pres., G. W. Perrin, Empire Bldg., Denver; Sec'y, J. Alvin Stewart, 524 14th Street, Denver.

CONNECTICUT—(July): Pres., H. Carson, Jr., Ridgefield; Sec'y, M. Catron, 292 W. Main Street, Waterbury.

DISTRICT OF COLUMBIA—(———): Pres., R. C. Malcomb, The Savoy, Washington; Sec'y, T. J. Howerton, Southern Bldg., Washington.

FLORIDA—(January): Pres., S. R. Love, 50 New York Ave., DeLand; Sec'y, Grace Gould, Dreka Bldg., DeLand.

GEORGIA—(May): Pres., F. Muir Turner, National Bank Bldg., Savannah; Sec'y, Gussie M. Phillips, Peck Bldg., Atlanta.

GULF STATES—(January): Pres., Grace Bullas, Biloxi, Miss.; Sec'y, P. H. Woodall, First National Bank Bldg., Birmingham, Ala.

IDAHO—(———): Pres., E. G. Houseman, Acme Bldg., Nampa; Sec'y, S. R. Rightenour, Sonna Blk., Boise.

ILLINOIS—(May): Pres., E. Q. Thawley, Woolner Bldg., Peoria; Sec'y, A. P. Kottler, 81 E. Madison Street, Chicago.

INDIANA—(Semi-Annually): Pres., W. S. Thomasson, Rose Dispensary Bldg., Terre Haute; Sec'y, W. C. Montague, Miller Bldg., Evansville.

IOWA—(May): Pres., Della B. Caldwell, Flynn Bldg., Des Moines; Sec'y, Carrie B. Collier, 1610 Main Street, Clarinda.

KANSAS—(May): Pres., J. H. Bower, Salina; Sec'y, G. B. Wolf, Ottawa.

KENTUCKY—(May): Pres., E. W. Patterson, Dawson Springs; Sec., Martha Petree, Agricultural Bank Bldg., Paris.

LOUISIANA—(———): Pres., Paul Geddes, Shreveport; Sec'y, Henry Tete, Maison-Blanche Bldg., New Orleans.

MAINE—(Quarterly): Pres., Mary W. Day, New Baxter Bldg., Portland; Sec'y, Florence Covey, The Somerset, Portland.

MARYLAND—(October): Pres., Henry A. McMains, Union Trust Bldg., Baltimore; Sec'y, H. D. Hurlock, 1813 N. Charles Street, Baltimore.

MASSACHUSETTS—(May): Pres., Audrey W. Hart, 64 Huntington Ave., Boston; Sec'y, Effie L. Rogers, 1091 Boylston Street, Boston.

MICHIGAN—(July): Pres., W. H. Jones, Adrian; Sec'y, Rebecca B. Mayers, Valpey Bldg., Detroit.

MINNESOTA—(October): Pres., Arthur D. Becker, Preston; Sec'y, F. E. Jorris, Lindley Blk., Minneapolis.

MISSOURI—(May): Pres., W. F. Englehart, Mo. Trust Bldg., St. Louis; Sec'y, Arlowyne Orr, Mo. Trust Bldg., St. Louis.

MONTANA—(———): Pres., C. E. Dove, Dion Blk., Glendive; Sec'y, J. Louise Smith, Masonic Temple, Missoula.

NEBRASKA—(September): Pres., H. M. Ireland, New Bodinson Bldg., Kearney; Sec'y, C. B. Atzen, Omaha National Bank Bldg., Omaha.

NEW HAMPSHIRE—(———): Pres., J. M. Gove, 4 N. State Street, Concord; Sec'y, W. D. Emery, Manchester.

NEW JERSEY—(October): Pres., D. Webb Granberry, 408 Main Street, Orange; Sec'y, F. M. Plummer, 462 Main Street, Orange.

NEW MEXICO—(December): Pres., Walter Mayes, Magdalena; Sec'y, M. Ione Hulett, Alamogordo.

NEW YORK—(October): Pres., Clinton D. Berry, Granite Bldg., Rochester; Sec'y, Grant E. Phillips, 619 State Street, Schenectady.

NORTH CAROLINA—(July): Pres., A. H. Zealey, 111 Chestnut Street, E. Goldsboro; Sec'y, M. J. Carson, Phillips Bldg., Rocky Mount.

NORTH DAKOTA—(January and July): Pres., ———; Sec'y, Orr Sanders, Security Blk., Grand Forks.

OHIO—(December): Pres., L. C. Sorenson, 334 1-2 Superior Street, Toledo; Sec'y, E. H. Cosner, Reibold Bldg., Dayton.

OKLAHOMA—(———): Pres., W. F. Nay, Chamber of Commerce Bldg., Enid; Sec'y, W. H. Elmore, Elk City.

ONTARIO—(May and September): Pres., J. S. Bach, Temple Bldg., Toronto; Sec'y, E. D. Heist, 39 King Street W., Berlin.

OREGON—(January): Pres., H. L. Howland, Portland; Sec'y, Lillian Baker, Corbett Bldg., Portland.

PENNSYLVANNIA—(July): Pres., E. M. Downing, York; Sec'y, J. C. Foster, Stein Bldg., Butler.

RHODE ISLAND—(October): Pres., W. B. Shepard, 146 Westminster Street, Providence; Sec'y, F. W. Wetmore, Oak Hall, Pawtucket.

SOUTH CAROLINA—(———): Pres., W. E. Scott, 214 S. Main Street, Greensville; Sec'y, Mary Lyle-Sims, 1711 Gervais Street, Columbia.

SOUTH DAKOTA—(———): Pres., John W. Pay, Milbank; Sec'y, H. F. Ludwig, Parker.

TENNESSEE—(May): Pres., H. Viehe, Randolph Bldg., Memphis; Sec'y, Ethel Brittain, Dyersburg.

TEXAS—(May): Pres., S. L. Scothorn, Wilson Bldg., Dallas; Sec'y, H. B. Mason, City National Bank Bldg., Temple.

UTAH—(March): Pres., J. F. Morrison, Kay Bldg., Ogden; Sec'y, Grace Stratton, Scott Bldg., Salt Lake City.

VERMONT—(———): Pres., M. S. Knauss, Montpelier; Sec'y, H. M. Loudon, 153 S. Union Street, Burlington.

VIRGINIA—(December): Pres., J. Meek Wolfe, Medical Blk., Lynchburg; Sec'y, W. D. Bowen 1 West Grace Street, Richmond.

WASHINGTON—(April): Pres., H. F. Morse, Russell-Plough Bldg., Wenatchee; Sec'y, W. T. Thomas, Fidelity Bldg., Tacoma.

WEST VIRGINIA—(June): Pres., W. J. Seaman, Huntington; Sec'y, W. A. Fletcher, 305 Mechanic Street, Clarksburg.

WISCONSIN—(———): Pres., F. A. Wright, 94 S. Main Street, Fond du Lac; Sec'y, E. J. Elton, Matthews Bldg., Milwaukee.

WYOMING—(———): Pres., F. I. Furry, Theatre Bldg., Cheyenne; Sec'y, G. H. Buffum, Sheridan.

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A Prominent Physician Has Pleasant Experience With Ballardvale Spring Water

——— N. J., July 1, 1912.

Dr. E. S. Barker,
33 Lewis Wharf,
Boston, Mass.

Dear Doctor:

Recently I had a very satisfactory experience with Ballardvale. The patient was a woman about forty years of age. Several years before she had a severe attack of cystitis which kept her in bed several weeks, and since, at frequent intervals, she has had recurring attacks more particularly of urethritis, or dysuria, lasting a day or two. There was no history or venereal infection.

The attack referred to in the opening sentence was especially severe, and I ordered three half-gallon bottles of Ballardvale Water and had the patient begin drinking it at once. The first urination following was almost painless and there was no further dysuria nor any unfavorable or painful symptom.

These attacks are apt to come on when the woman is very tired or suffers from indigestion. I think it is primarily a digestive disturbance when the urine becomes acid and scalding to a sensitive area about the neck of the bladder. From my experience with Ballardvale in other attacks of this patient and several cases where dysuria was speedily relieved on using Ballardvale, I am convinced that in all of these cases it is a great comfort to the sufferer as well as an aid to the physician, and I do not doubt that the constant use of the Water or at frequent intervals when its use seems indicated would avoid the attacks altogether.

Yours sincerely,

(Signed)..... , D. O.
(Name given on request)

Ballardvale Water now sold in cases of 6 one-gallon bottles at $3.50 per case delivered. Special price to physicians.